

GRADUATE CATALOG

BRIGHAM YOUNG UNIVERSITY BULLETIN

2004-2005

... THE LIPS OF KNOWLEDGE
ARE A PRECIOUS JEWEL.

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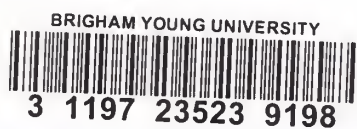


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**2004–2005
GRADUATE
CATALOG**

**BRIGHAM
YOUNG
UNIVERSITY
BULLETIN
USPS No. 065-120**

Obtaining Catalogs

To order a copy of either the BYU Graduate Catalog (hard copy or CD version) or the BYU Undergraduate Catalog, please contact Mail Services, Brigham Young University, 296 UPB, Provo, UT 84602-1930, telephone (801) 378-3658. Within the United States, a BYU Graduate Catalog mailed second class costs \$11* each and mailed first class costs \$13.50.* A BYU Undergraduate Catalog mailed second class costs \$17* and mailed first class costs \$19.50.* These prices include postage and handling. VISA, MasterCard, check, or money order is accepted in payment. On campus, the catalogs can be purchased at the BYU Bookstore: \$7 for the BYU Graduate Catalog and \$9.95 for the BYU Undergraduate Catalog. The graduate and undergraduate catalogs, as well as the class schedules, are also available on the Web at <http://ar.byu.edu/catalog> or through BYU's homepage at www.byu.edu.

*Subject to change.

About This Catalog

The university makes every effort to ensure the accuracy of the contents of this catalog but reserves the right to make changes at any time without prior notice. Since change is a part of university life, curriculum and program changes will likely occur during the time the 2004-2005 Graduate Catalog is in circulation. Students are advised to consult the following sources for current and specific information:

1. The appropriate university department or advisor.
2. The class schedule, printed three times a year, which includes up-to-date information on courses offered, class hours, class locations, and the latest calendar dates, fees, and registration details.

It is the student's responsibility to learn of and abide by current policies and requirements. In the event of change, every reasonable effort will be made to permit students affected to complete their programs or similar programs.

Policies and requirements in the General Information section of this catalog reflect standards of minimum performance and may be less stringent than those established by individual departments. Most departments have printed materials of their own describing in detail their programs, deadlines, expectations, and opportunities for financial assistance. Therefore, any potential applicants should notify prospective departments of their interest and request printed information from those departments. Because some application deadlines are as early as January for fall admission, and some departments admit new students only once a year, early inquiry is recommended.

The Law School and the Graduate School of Management require different application forms than that used for other graduate programs. Furthermore, the Law School publishes its own bulletin and follows a different calendar. Prospective applicants to these professional schools should write directly to them.

Statement of Nondiscrimination—Admission to Brigham Young University is nondiscriminatory. The university admits persons regardless of race, color, national origin, religion, age, gender, veteran status, or disability who meet university and department academic requirements and agree to abide by the university's standards of conduct and honor code.

Volume 101 Number 1 February 2004 Provo, Utah 84605
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Cover by Jon Woidka

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Where to Write or Call for Information

(Complete the following addresses with *Provo, UT 84602*.)

General Information on Graduate Education

Office of Graduate Studies
B-356 ASB
(801) 422-4091

Campus Tours

Visitors Center
(801) 422-4678

International Services

1351 WSC
(801) 422-2695

Law School Admissions

340 JRCB
(801) 422-4277

Marriott School of Management

730 TNRB
(801) 422-4123

Records

B-150 ASB
(801) 422-2631

Registration

B-130 ASB
(801) 422-2824

Scholarships and Awards

Individual academic departments

Student Employment Services

2024 WSC
(801) 422-3561

Campus Accommodations

On-Campus Housing Office
100 SASB
(801) 378-2611
Off-Campus Housing Office
2170 WSC
(801) 422-5066

Student Loans

Financial Aid Office
A-41 ASB
(801) 422-4104

Tests (GRE, GMAT, LSAT, and Miller)

Testing Services
265 HGB
(801) 422-6129

Tuition and Fees

Cashiers' Office
D-155 ASB
(801) 422-7808

Veterans Support Office

B-150 ASB
(801) 422-2768

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BRIGHAM Young University offers an exceptional educational opportunity for the well-prepared graduate student who is seeking an environment where learning experiences with dedicated scholars characterize graduate study. Established and sponsored by The Church of Jesus Christ of Latter-day Saints, BYU is the largest privately owned university in the United States. The university president, Cecil O. Samuelson, is directly responsible to the board of trustees, led by the president of The Church of Jesus Christ of Latter-day Saints and composed of Church authorities. In a time of constantly changing human values and increased challenges for higher education, BYU holds steadfastly to a singular vision that combines reasoned and revealed learning. Along with extensive undergraduate programs, BYU offers master's and doctoral degrees in a variety of disciplines through fifty-three graduate departments. In addition, the Law School and the Marriott School of Management offer juris doctorate and master's graduate degrees.

Founded in 1875 as Brigham Young Academy, the campus has grown from one building to 500 buildings on more than 600 acres. Its first class of twenty-nine students was taught by the academy's founding scholar, Karl G. Maeser. Now more than 1,500 full-time faculty instruct 33,000 students. From its modest beginnings Brigham Young University has grown to become a distinguished institution of private higher education. At BYU teaching and scholarly research are valued as essential complements of one another. Faculty and students work side by side in collegial scholarship enhanced by mutual commitment to the highest ideals of professional ethics and spiritual values.

Situated at the foot of the beautifully rugged Wasatch Range of the Rocky Mountains and bounded on the west by twenty-three-mile-long Utah Lake, the campus is the focal point of a city of 110,000 and a valley of 331,000. Beyond it to the south and east are spectacular areas of vast sandstone canyons and monoliths, several of which are national parks. Forty-five miles north is Salt Lake City.

The faculty at BYU have been schooled at some of the leading universities of the nation as well as of other countries, and many of them have achieved national and international prominence as teachers and scholars.




FROM THE PRESIDENT . . .

WELCOME to the university and to graduate study, with programs designed to provide you with enriching experiences that expand your ability to make a difference in the world. In many ways, graduate study sets the expectations and standards at a university—the depth of disciplinary knowledge, the breadth of scientific and creative discovery, and the rigor and virtue of individual and collective investment.

Through graduate study you become not only a consumer but also a contributor to the world's store of knowledge, be it artistic or scientific, applied or theoretical. At the graduate level, teacher and student work as partners in these important endeavors.

This catalog contains information about BYU's degree requirements, policies, and course offerings, as well as its distinctive mission. I hope the resources available to you on this campus guide your efforts to observe more keenly, to contemplate more deeply, to see more insightfully, and to enjoy more thoroughly your study at BYU.



Cecil O. Samuelson

BRIGHAM YOUNG UNIVERSITY

ADMINISTRATION

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Richard G. Scott

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Assistant to the President, General Counsel and Secretary

Associate General Counsel and Assistant Secretary

Associate General Counsel

Assistant to the President—Planning and Assessment

Assistant to the President—University Communications

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Associate Academic Vice President—Research and Graduate Studies

Associate Academic Vice President—Undergraduate Studies

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Information Technology Vice President, CIO

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International Vice President

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J. Kelly Flanagan

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Erlend D. Peterson

Jan Van Orman

Janet S. Scharman

Ronald K. Chapman

Brian K. Evans

Richard P. White

Brigham Young University is fully accredited by the Northwest Association of Schools and Colleges. In addition, many professional programs of the university are reviewed, evaluated, and accredited by national and state associations and boards.

For a complete listing of university officers, of organizations that have given full accreditation to related programs at the university, and of educational associations with which the university is affiliated, see the BYU Undergraduate Catalog.

MISSION OF BRIGHAM YOUNG UNIVERSITY

THE mission of Brigham Young University—founded, supported, and guided by The Church of Jesus Christ of Latter-day Saints—is to assist individuals in their quest for perfection and eternal life. That assistance should provide a period of intensive learning in a stimulating setting where a commitment to excellence is expected and the full realization of human potential is pursued.

All instruction, programs, and services at BYU, including a wide variety of extracurricular experiences, should make their own contribution toward the balanced development of the total person. Such a broadly prepared individual will not only be capable of meeting personal challenge and change but will also bring strength to others in the tasks of home and family life, social relationships, civic duty, and service to mankind.

To succeed in this mission the university must provide an environment enlightened by living prophets and sustained by those moral virtues which characterize the life and teachings of the Son of God. In that environment these four major educational goals should prevail:

- All students at BYU should be taught the truths of the gospel of Jesus Christ. Any education is inadequate which does not emphasize that His is the only name given under heaven whereby mankind can be saved. Certainly all relationships within the BYU community should reflect devout love of God and a loving, genuine concern for the welfare of our neighbor.
- Because the gospel encourages the pursuit of all truth, students at BYU should receive a broad university education. The arts, letters, and sciences provide the core of such an education, which will help students think clearly, communicate effectively, understand important ideas in their own cultural tradition as well as that of others, and establish clear standards of intellectual integrity.
- In addition to a strong general education, students should also receive instruction in the special fields of their choice. The university cannot provide programs in all possible areas of professional or vocational work, but in those it does provide the preparation must be excellent. Students who graduate from BYU should be capable of competing with the best in their fields.
- Scholarly research and creative endeavor among both faculty and students, including those in selected graduate programs of real consequence, are essential and will be encouraged.

In meeting these objectives BYU's faculty, staff, students, and administrators should also be anxious to make their service and scholarship available to The Church of Jesus Christ of Latter-day Saints in furthering its work worldwide. In an era of limited enrollments, BYU can continue to expand its influence both by encouraging programs that are central to the Church's purposes and by making its resources available to the Church when called upon to do so.

We believe the earnest pursuit of this institutional mission can have a strong effect on the course of higher education and will greatly enlarge Brigham Young University's influence in a world we wish to improve.

GRADUATE STUDY AT BRIGHAM YOUNG UNIVERSITY

Dean: Bonnie Brinton, Professor, Audiology and
Speech-Language Pathology
B-380 ASB
Provo, UT 84602-1341
(801) 422-4465

A UNIVERSITY is a place where men and women of character meet minds and ideas that have shaped and will continue to shape human experience in significant ways. It is a place where people read and think and create and analyze, and where they give expression to ideas. It is a place of intellectual and moral broadening and deepening. It is a place where people contribute new knowledge and arrive at new levels of understanding.

Graduate study distinguishes itself by advanced systematic study and experience in depth—a depth in understanding, knowledge, and scholarly competence and in inquiry and discovery. Successful graduates are equipped to contribute to their disciplines, to teach and transmit knowledge within their disciplines, to conduct research and be creative, to apply their learning in the everyday world, and ultimately to extend service to their disciplines and to humanity. Building on the foundation of a strong baccalaureate education, graduate study at BYU adds an expectation of significantly greater levels of competency. Through graduate study, students achieve mastery of a discipline by engaging its primary sources and comprehending its literature and methodologies. The graduate degree connotes that

the graduate is not only aware of but has acquired experience in academic and professional roles and responsibilities.

Graduate study at the university culminates in doctoral and master's degrees in a broad range of academic disciplines and professional fields. The doctoral degree requires the student to demonstrate a high level of scholarly competence, which includes the ability to conduct and report significant research in a highly effective manner. Advanced systematic study in a discipline is also essential, and it is followed by comprehensive examinations that require students to integrate and understand the collective knowledge of their disciplines. A written dissertation resulting from independent research is scrutinized and tested in a concluding oral examination. The master's degree also includes advanced course work, demonstrated mastery on vital aspects of a discipline, skill in research methodology and theory, and preparation for future creative work. Nearly all master's programs involve integrating examinations and a major culminating piece of written work, usually a thesis, followed by an oral examination on that work.

Graduate study at Brigham Young University takes place within a learning environment characterized by rigorous programs of study, by selective admission of highly qualified students, and by a graduate faculty who are committed to excellence in teaching, scholarship and creative activity, and service.

GRADUATE COUNCIL

CONSISTING of senior faculty members from a variety of disciplines, the Graduate Council is one of a number of councils with major responsibility for academic programs and standards across the campus. The Graduate Council is primarily responsible for establishing and maintaining standards of quality in graduate education at Brigham Young University. In discharging this responsibility, the council sets policy, conducts extensive reviews of graduate programs, evaluates proposals for new programs, and makes recommendations to the academic vice president on a variety of issues affecting graduate education.

The goal of the council is to ensure that excellent graduate programs are offered and sustained at BYU. Thus, the university is engaged in a continuing effort to consolidate resources behind strong programs and excellent graduate experiences.

Current members of the Graduate Council are: Ralph Brown, Sociology; Robert Bullough, Teacher Education; Gary Cornia, Romney Institute of Public Management; Daniel Graham, Philosophy; William McCleary, Microbiology and Molecular Biology; Ray Merrill, Health Science; Noel Owen, Chemistry and Biochemistry; Thomas Sederberg, Computer Science; Wynn Stirling, Electrical and Computer Engineering; Daniel Stout, Communications; and Mary Williams, Nursing.

OFFICE OF GRADUATE STUDIES

B-356 ASB

Provo, UT 84602-1339

(801) 422-4091

Internet: <http://www.byu.edu/gradstudies>

ALTHOUGH departments and colleges carry the major responsibility for graduate programs at BYU, certain procedures occur centrally. The admissions process begins in the Office of Graduate Studies, and progress toward a degree is recorded there. The office also maintains standards and requirements that apply uniformly across campus and serves as a clearinghouse for questions, problems, exceptions to policy, and requests for policy

changes. The office is staffed by advisors thoroughly familiar with policies and procedures at the general university level. It is in the student's home department, however, that the most important advising is done in regard to individual program requirements and procedures. It is essential that a student consult frequently with departmental advisors. In many instances department requirements exceed university minimums.

STANDARDS OF CONDUCT

THE Brigham Young University Honor Code is established by the university and the board of trustees for all students under its jurisdiction in institutions of higher learning. To know the substance and essence of that code is to know that Brigham Young University is unique among universities. Governed by principles basic to its sponsoring church, The Church of Jesus Christ of Latter-day Saints, it purposefully creates and nurtures an environment in which faith and intellect join together in the pursuit of truth.

HONOR CODE

Brigham Young University exists to provide an education in an atmosphere consistent with the ideals and principles of The Church of Jesus Christ of Latter-day Saints. That atmosphere is created and preserved through commitment to conduct that reflects those ideals and principles. Members of the faculty, administration, staff, and student body at BYU are selected and retained from among those who voluntarily live the principles of the gospel of Jesus Christ. Observance of such is a specific condition of employment and admission. Those individuals who are not members of The Church of Jesus Christ of Latter-day Saints are also expected to maintain the same standards of conduct, except church attendance. All who represent BYU are to maintain the highest standards of honor, integrity, morality, and consideration of others in personal behavior. By accepting appointment on the faculty, continuing in employment, or continuing class enrollment, individuals evidence their commitment to observe the Honor Code standards approved by the Board of Trustees "at all times and . . . in all places" (Mosiah 18:9).

HONOR CODE STATEMENT

We believe in being honest, true, chaste, benevolent, virtuous, and in doing good to all men. . . . If there is anything virtuous, lovely, or of good report or praiseworthy, we seek after these things.

—THIRTEENTH ARTICLE OF FAITH

As a matter of personal commitment, students, faculty, and staff of Brigham Young University seek to demonstrate in daily living on and off campus those moral virtues encompassed in the gospel of Jesus Christ, and will

Be honest

Obey the law and all campus policies

Live a chaste and virtuous life

Use clean language

Respect others

Abstain from alcoholic beverages, tobacco, tea, coffee, and substance abuse

Observe the Dress and Grooming Standards

Participate regularly in church services

Encourage others in their commitment

to comply with the BYU Honor Code.

Specific policies embodied in the Honor Code include (1) the Academic Honesty Policy, (2) the Dress and Grooming Standards, (3) the Residential Living Standards, and (4) the Continuing Student Ecclesiastical Endorsement. (Refer to the current BYU Undergraduate Catalog for more detailed information.)

CONTINUING STUDENT ECCLESIASTICAL ENDORSEMENT

For each academic year in which students wish to register for any university credit, including thesis hours, internships, or off-campus programs, they are required to have obtained a Continuing Student Ecclesiastical Endorsement. LDS students must be endorsed by the bishop of the ward in which they live and which holds their current Church membership records. Non-LDS students may be endorsed

by the local leader of their preferred religious denomination or by the bishop of the LDS ward in which they live.

REQUIREMENTS

All students must abide by the Honor Code, Residential Living Standards, and Dress and Grooming Standards. LDS students must fulfill their duty in The Church of Jesus Christ of Latter-day Saints, attend Church meetings, and abide by the rules and standards of the Church.

WITHDRAWN CONTINUING STUDENT ECCLESIASTICAL ENDORSEMENT

The Continuing Student Ecclesiastical Endorsement may be withdrawn at any time by a student's ecclesiastical leader. When an endorsement is withdrawn, the student will be required to discontinue enrollment at the university. The decision to withdraw an ecclesiastical endorsement may be appealed first to the student's stake president. In the case where a student is dissatisfied with the stake president's decision, an appeal may be made to the Honor Code Office.

UNIVERSITY LIBRARY

3080 HBLL
Provo, UT 84602-6878
(801) 422-2905
www.lib.byu.edu

University Librarian: Randy J. Olsen
Associate University Librarian: Julene Butler
Assistant University Librarian: Scott Duvall
Assistant University Librarian: Robert Murdoch

HOUSING over three million volumes, including an extensive collection of pamphlets, journals, current serials, newspapers, microform titles, and nonprint materials, the Harold B. Lee Library is a major resource for graduate student research. The collection includes many electronic indexes and full-text databases as well as thousands of digital objects and images. It is a depository for United States government documents and regularly receives publications of state and local governments. Some of the library's strengths include special research collections in music in the areas of film, radio, viola, and harp. Notable collections have also been established in early modern European history, Renaissance Reformation history, American Church history, western Americana, Mormon Americana, nineteenth-century British literature, and the history of astronomy. Although many volumes of these collections are found in open stacks, special collection and manuscript items are located on Level 1 of the library's new addition.

BYU participates in several cooperative programs that allow students and faculty to use materials housed in other state institutions and major research libraries throughout the United States:

1. **Interlibrary loan services** (Mark Smith, 3427 HBLL, Provo, UT 84602-6881, telephone [801] 422-3624) allow students to borrow books from other institutions. Journal articles are delivered via e-mail whenever possible.

2. Through the **Utah Academic Libraries**

Consortium arrangements have been made that allow students with valid BYU ID cards to borrow materials from other college and university libraries in the state.

3. The **Research Libraries Group** is a national consortium of major research libraries that work together to improve access to library resources necessary in scholarly research. The benefits of membership in this group include priority treatment of interlibrary loan requests from many major U.S. libraries (e.g., Yale, Princeton, Stanford, University of Michigan) and the availability of some materials that normally do not circulate. This group also sponsors a computerized shared-cataloging system that provides access to the computerized catalogs of member libraries. Inquiries are handled at the reference desk on the main floor (level 3, [801] 422-2927).

The library also provides a number of special services for graduate students. Graduate students may check out circulating books for thirteen weeks rather than three (the undergraduate limit). Research personnel in the library, in addition to reference desk staff, will work individually and in depth with graduate students on their research projects and theses.

The facilities of other libraries operated by The Church of Jesus Christ of Latter-day Saints are also available to Brigham Young University students. The Family History Library in Salt Lake City contains approximately 100,000 books and more than 800,000 rolls of microfilm. A regional family history library, operating under the general direction of the Church Family History Department, is located in the Harold B. Lee Library. The library of the Church Historical Department is also available by arrangement to advanced students for research. This facility is in the LDS Church Office Building in Salt Lake City.

UNIVERSITY GRADUATE STUDIES CALENDAR

Fall Semester 2004

Many departments have deadlines earlier than the general university deadlines listed below. Contact departments for specific deadlines.

- January 1, 2004 Departmental application deadlines for fall 2004 entry to graduate study may be as early as January 1, 2004. For specific program and department deadlines and requirements, refer to the department listing in this catalog or check with the department.
- June 1 Financial aid priority processing date for Federal Stafford Loans
- August 23–25 Annual University Conference
- 29 Last day to officially discontinue enrollment without a tuition charge for fall semester 2004
- 30 Classes begin
- September 5 Last day to apply for BYU short-term loans from Financial Aid Office to pay fall semester 2004 tuition by payment deadline
- 6 Labor Day holiday
- 13 Last day to late register or add classes. Classes dropped after this date will appear with W (official withdrawal) on the transcript.
- 13 Last day to pay tuition without a late fee
- 24 Last day graduate students may apply for December 2004 graduation
- October 4 Last day to drop a class for academic reasons and/or officially discontinue from the university without being graded
- October 29 Last day students in dissertation, thesis, or selected project programs may schedule a final oral examination (defense of their work) and submit a copy of their work to their department for December 2004 graduation

- November 12 Last day students in dissertation, thesis, or selected project programs may have a final oral examination (defense of their work) for December 2004 graduation
- 17 Full payment due on BYU short-term loans for fall semester 2004
- 19 Last day students may submit their dissertation, thesis, or selected project to the dean of their college for approval for December 2004 graduation
- 23 Last day to officially withdraw from the university or drop classes for nonacademic emergencies
- 24–26 Thanksgiving Day holiday
- December 3 Last day students may submit final copies of their dissertation, thesis, or selected project to the library business office for binding; complete remaining requirements for a degree; pay fees; and submit examination results (oral or written) and grade changes for I's, T's, etc., to the Office of Graduate Studies for December 2004 graduation
- 9 Last day of class instruction
- 10–11 Reading days
- 13–17 Final examinations
- 17 December graduation (no commencement exercises)

Winter Semester 2005

Many departments have deadlines earlier than the general university deadlines listed below. Contact departments for specific deadlines.

- February 1, 2004 Departmental application deadlines for winter 2005 entry to graduate study may be as early as February 1, 2004. For specific program and department deadlines and requirements, refer to the department listing in this catalog or check with the department.

- January 3, 2005 Last day to officially discontinue enrollment without a tuition charge for winter semester 2005
- 4 Classes begin
- 9 Last day to apply for BYU short-term loans from Financial Aid Office to pay winter semester 2005 tuition by payment deadline
- 14 Last day graduate students may apply for April 2005 graduation
- 17 Martin Luther King Day holiday
- 18 Last day to pay tuition without a late fee
- 18 Last day to late register or add classes. Classes dropped after this date will appear with W (official withdrawal) on the transcript.
- February 8 Last day to drop a class for academic reasons and/or officially discontinue from the university without being graded
- 18 Last day students in dissertation, thesis, or selected project programs may schedule a final oral examination (defense of their work) and submit a copy of their work to their department for April 2005 graduation
- 21 Presidents' Day holiday
- 22 Monday class instruction. No Tuesday classes
- March 4 Last day students in dissertation, thesis, or selected project programs may have a final oral examination (defense of their work) for April 2005 graduation
- 11 Last day students may submit their dissertation, thesis, or selected project to the dean of their college for approval for April 2005 graduation
- 15 Full payment due on BYU short-term loans for winter semester 2005
- 18 Last day students may submit final copies of their dissertation, thesis, or selected project to the library business office for binding; complete remaining requirements for a degree; pay fees; and submit examination results (oral or written) and grade changes for I's, T's, etc., to the Office of Graduate Studies for April 2005 graduation
- March 31 Last day to officially withdraw from the university or drop classes for nonacademic emergencies
- April 13 Last day of class instruction
- 14–15 Reading days
- 16, 18–21 Final examinations
- 21 Graduation—university commencement
- 22 Graduation—college convocations
- Spring Term 2005**
Many departments have deadlines earlier than the general university deadlines listed below. Contact departments for specific deadlines.
- September 15, 2004 Departmental application deadlines for spring 2005 entry to graduate study may be as early as September 15, 2004. For specific program and department deadlines and requirements, refer to the department listing in this catalog or check with the department.
- April 25, 2005 Last day to officially discontinue enrollment without a tuition charge for spring term 2005
- 26 Classes begin
- 30 Last day to apply for BYU short-term loans from Financial Aid Office to pay spring term 2005 tuition by payment deadline
- May 3 Last day to late register or add classes. Classes dropped after this date will appear with W (official withdrawal) on the transcript.
- 3 Last day to pay tuition without a late fee
- 12 Last day to drop a class for academic reasons and/or officially discontinue from the university without being graded

- 20 Last day graduate students may apply for August 2005 graduation
- 30 Memorial Day holiday
- 31 Last day to officially withdraw from the university or drop classes for nonacademic emergencies
- June 1 Full payment due on BYU short-term loans for spring term 2005
- 13 Last day of class instruction
- 14 Reading day
- 15–16 Final examinations
- 17 Last day students in dissertation, thesis, or selected project programs may schedule a final oral examination (defense of their work) and submit a copy of their work to their department for August 2005 graduation

Summer Term 2005

Many departments have deadlines earlier than the general university deadlines listed below. Contact departments for specific deadlines.

- December 15, 2004 Departmental application deadlines for summer 2005 entry to graduate study may be as early as December 15, 2004. For specific program and department deadlines and requirements, refer to the department listing in this catalog or check with the department.
- May 20 Last day graduate students may apply for August 2005 graduation
- June 17 Last day students in dissertation, thesis, or selected project programs may schedule a final oral examination (defense of their work) and submit a copy of their work to their department for August 2005 graduation
- 19 Last day to officially discontinue enrollment without a tuition charge for summer term 2005
- 20 Classes begin
- 25 Last day to apply for BYU short-term loans from Financial Aid Office to pay summer term 2005 tuition by payment deadline

- 27 Last day to late register or add classes. Classes dropped after this date will appear with W (official withdrawal) on the transcript.
- 27 Last day to pay tuition without a late fee
- July 1 Last day students in dissertation, thesis, or selected project programs may have a final oral examination (defense of their work) for August 2005 graduation
- 4 Independence Day university holiday
- 7 Last day to drop a class for academic reasons and/or officially discontinue from the university without being graded
- 8 Last day students may submit their dissertation, thesis, or selected project to the dean of their college for approval for August 2005 graduation
- 15 Last day students may submit final copies of their dissertation, thesis, or selected project to the library business office for binding; complete remaining requirements for a degree; pay fees; and submit examination results (oral or written) and grade changes for I's, T's, etc., to the Office of Graduate Studies for August 2005 graduation
- 25 Pioneer Day holiday
- 26 Last day to officially withdraw from the university or drop classes for nonacademic emergencies
- August 1 Full payment due on BYU short-term loans for summer term 2005
- 8 Last day of class instruction
- 9 Reading day
- 10–11 Final examinations
- 11 Graduation—university commencement
- 12 Graduation—college convocations

GENERAL INFORMATION

TUITION AND FEES

Cashiers' Office
D-155 ASB
Provo, UT 84602-1128
(801) 422-7808

Tuition

A significant portion of the cost of operating the university is paid from the tithes of The Church of Jesus Christ of Latter-day Saints. Therefore, students and families of students who are tithe-paying members of the Church have already made a contribution to the operation of the university. Because others have not so contributed, they are charged a higher rate of tuition. This practice is similar in principle to that of state universities that generally charge nonresidents at a higher rate than residents.

All students who register at BYU must pay their full tuition and fees (in U.S. dollars) by the add deadline of the semester or term of attendance. Fees are to be paid at the Cashiers' Office. Questions regarding fee assessment should be addressed to Financial Services (D-148 ASB). The university reserves the right to change tuition and fees without notice.

Because students beyond the baccalaureate degree typically make a heavier demand on university resources than undergraduate students do, they are assessed at a higher tuition rate.

Full-Time and Part-Time Tuition Assessment

Students assessed full-time tuition pay a fixed rate of tuition; students assessed part-time tuition pay for the number of credit hours taken.

- Full-time: 8.5 or more hours in a semester
4.5 or more hours in a term
- Part-time: Fewer than 8.5 hours in a semester
Fewer than 4.5 hours in a term

Audited Courses

The charge for auditing a course (attending class but not receiving a grade or credit) is the same as for

taking the course for credit. Audited courses do not appear on the transcript.

Refunds

Students who officially discontinue from the university may receive a partial refund of tuition and fees. Details concerning discontinuance procedures and refund schedules are printed in the current class schedule.

2004–2005 Tuition Schedule

Per Semester (fall or winter)		Per Term (spring or summer)	
LDS	Non-LDS	LDS	Non-LDS

Graduate Students (other than students in the Law School and Graduate School of Management)

Full-Time			
\$2,070	\$3,105	\$1,035	\$1,552
Part-Time			
\$230	\$345	\$230	\$345
per hour	per hour	per hour	per hour

Graduate School of Management and Law School Students

Full-Time			
\$3,580	\$5,370	\$1,790	\$2,685
Part-Time			
\$398	\$597	\$398	\$597
per hour	per hour	per hour	per hour

Fees

Late Tuition Payment Fee

Full-time and part-time students who pay tuition after the tuition payment deadline (see current class schedule) for a semester or a term are assessed the following late fees:

Semesters:

After the add deadline..... \$90

Terms:

After the add deadline..... \$45

Students whose tuition check is not honored by the bank will be charged the late fee in effect at the time the check is redeemed.

Class Fees

Some courses require a fee in addition to tuition, to be paid upon registration. See course listings.

Miscellaneous General Fees

The university assesses fees for a variety of services. The following apply specifically to graduate education:

Application fee (nonrefundable) \$50

Graduate minimum registration fee

(for graduate students using university facilities without formal registration for university classes)

LDS \$460

Non-LDS..... \$690

Microfilming of dissertation

(doctoral students only)..... *\$55

Challenge examination fee

Nonrefundable fee for each course challenged. \$20

Thesis binding (up to four copies)..... *\$52

Electronic theses/dissertations (paper copies)

..... determined by department

*Subject to change without notification.

ADMISSIONS

Office of Graduate Studies

B-356 ASB

Provo, UT 84602-1339

(801) 422-4091

<http://www.byu.edu/gradstudies>

Applications can be submitted online

(<http://www.byu.edu/gradstudies/admissions/applications/onlineapp.html>) or as paper applica-

tions. Online applications are strongly encouraged because they require a shorter and more efficient processing time. Paper applications can either be downloaded and printed from the Web site or requested from the Office of Graduate Studies or the individual departments. The Law School (340 JRCB, Provo, UT 84602-8000, telephone [801] 422-4277) uses a separate form that they furnish upon request.

Deadlines for Application to Graduate Studies

Application deadlines vary by department and program and are listed in the catalog under the department sections and on the Graduate Studies Web site. All parts of the application (including test scores, letters of recommendation, transcripts, and any additional materials required by the department) must be received by the Office of Graduate Studies on or before the published deadline. Many programs recommend submitting complete applications at least 30 days before their published application deadlines.

Application Requirements

Admission to graduate study is highly selective and is granted to a specific program for a specific semester or term. As a minimum, applicants who wish to be considered for admission must accomplish the following:

1. Submit a complete application before the application deadline. An application is not considered complete until the application for admission, all official transcripts, letters of recommendation, the statement of intent, and the confidential report have been received and the application fee has been paid.
2. Satisfy specified departmental requirements for consideration before the application deadline, including national examinations (such as the GRE).
3. Agree to maintain university standards of personal conduct.
4. Receive a baccalaureate degree from an accredited U.S. or Canadian university before the expected semester of entry. The Office of Graduate Studies must receive an official transcript showing that the degree has been conferred. Without such verification, registration will not be permitted beyond the first semester.
5. Have earned at least a 3.0 GPA (on a 4.0 scale) in the last 60 semester hours of course work.

Note: *Students applying concurrently to more than one program must complete a separate application for each program and pay a separate fee for each application, but they need submit only one Honor Code Commitment and Confidential Report.*

International Applicants (all non-U.S.)

In addition to the requirements described above, international applicants must do the following:

1. Submit a TOEFL score of at least 213 (paper-based test 550) with no subscore lower than 18 (paper-based test 50). Some departments require a higher minimum score. The TOEFL examination is required of all applicants for whom English is not the native language. Students with a bachelor's degree from a U.S. or English-speaking Canadian university are exempt from this requirement.
2. Submit a completed Financial Certification form (I-1), with supporting documents. Master's applicants must provide proof of sufficient funds for two years; doctoral applicants must provide proof of sufficient funds for three years.
3. Submit an official transcript from each institution attended, with accompanying official English translation.
4. Submit an official copy of a degree certificate showing completion of a program at least equivalent to a U.S. bachelor's degree, with accompanying official English translation.

Note: Brigham Young University will not process applications from applicants entering the United States with a "B" or tourist visa.

Full Disclosure Requirement

All information and documents required for admission must be submitted, including transcripts from every institution attended. **Note:** BYU transcripts do not need to be submitted. Incomplete information or falsification of information constitutes grounds for immediate dismissal and loss of all credit earned at BYU. Once the university receives application materials, those materials become the property of the university and are kept in the strictest confidence as required by university policy. Once the parts of an application have been received, materials will not be returned to the applicant.

Admissions Process

The Office of Graduate Studies receives and checks all parts of the application for completeness. Information for the department, the statement of intent, one copy of the official transcripts, letters of recommendation, and other departmental requirements are forwarded to the department; other parts

of the application are retained in the Office of Graduate Studies. When the application is complete (an application from an international applicant must also include the TOEFL score and financial clearance to be complete), the Office of Graduate Studies clears the applicant for the department's consideration and asks for the department's recommendation.

Notice of Acceptance or Denial

After the admissions file has been reviewed for final acceptance by the department and the Office of Graduate Studies, the university notifies applicants of the admissions decision. Only a letter from the Office of Graduate Studies grants official university acceptance. International applicants receive an I-20 form with their official acceptance letter; the I-20 is used to obtain a student visa (F-1).

Newly admitted international students are required to attend an orientation meeting at the beginning of their first semester. Details are available at International Services (1351 WSC, Provo, UT 84602-7917, telephone [801] 422-2695).

Post-Baccalaureate Studies

Students with a baccalaureate degree who are interested in registering at BYU on a post-baccalaureate studies basis may register for courses on a space-available basis. During fall and winter semesters, enrollment is limited to part-time (11.5 hours or less). To be considered for admission as a post-baccalaureate studies student, applicants should have a 3.0 (B) grade point average and complete an undergraduate application with a statement attached explaining their purpose in seeking enrollment and describing the courses they intend to take.

Students with a baccalaureate degree who are seeking teacher certification should refer to the undergraduate catalog or the Admissions Office for information.

Questions about post-baccalaureate studies applications should be directed to an admissions counselor in the BYU Admissions Office (A-183 ASB, Provo, UT 84602-1110, telephone [801] 422-2500).

REGISTRATION

B-130 ASB
Provo, UT 84602-1114
(801) 422-2824

Eligibility

Upon receipt of an official letter of acceptance from the Office of Graduate Studies, new graduate students are eligible to register. New students lose their eligibility if they do not register for a minimum of 2 credit hours in the first semester/term for which they have been admitted. Continuing graduate students are eligible if they have fulfilled the minimum registration requirement (6 hours per year) in the preceding academic year.

Registration Materials

The current class schedule contains complete registration instructions, deadlines, and a list of all classes offered, including times, instructors, and locations. It is now provided online at www.byu.edu.

Registration Process

The current class schedule contains a complete description of the registration process. What follows is a brief summary of that process:

You may access BYU Web registration from your own home if you have the Internet and have downloaded Netscape Communicator 4.0+ or Explorer 4.0+. Both of these browsers are available for downloading on the World Wide Web. You must have an ISP (Internet Service Provider). Consult a local telephone directory to find a provider that works best with your needs.

If you can't access the Web from home, you can use computers on the BYU campus, available at access point labs and kiosks in most buildings. You can also find computers connected to the Web at most public libraries.

1. **Open the BYU homepage.** The Internet address is www.byu.edu.
2. **Log in to Route Y by entering your Net ID and password.** If you do not know your Net ID, click on *Find Net ID* and follow the instructions. The password for first-time users is your birth month, day, and year. (For example, the password for a May 16, 1974, birthday is 051674.) You will be prompted to change your password

for security reasons. If you experience problems entering Route Y with your Net ID or password, contact the Registration Office at (801) 422-2824 (8 a.m.–5 p.m. MT).

3. **Choose AIM then Registration.**
4. **When you finish, EXIT the system** to ensure security of your information.

A Tuition Billing Statement with a listing of classes is mailed prior to the tuition deadline to each student registered for at least one class. Students who fail to pay tuition by the add deadline of a semester or term will be assessed late-tuition fees.

Once a student registers for classes, that student is officially enrolled and committed to attend. A student who then decides not to come must drop all classes. Classes may be dropped via the Web registration system or in person at the Registration Office, B-130 ASB. Once school begins, students should contact the Discontinuance Office in B-150 ASB, Provo, UT 84602-1114, or telephone (801) 422-7705. Classes that are not dropped will remain on the student's record and be charged tuition. Tuition will be charged starting the first day of class to the date of discontinuance at the percentage rate listed in the current class schedule.

Changes in Registration

Students may add or drop classes twenty-four hours a day using the AIM registration system until classes begin. After the semester or term has started, however, each academic department determines how classes are added in that department. Final dates, fees, and instructions for adding and dropping classes are printed in the current class schedule.

Auditing Classes

U.S. students who wish to audit classes (attend but not receive credit) may add such classes on a space-available basis with instructor signature approval on an add/drop card during the first ten class days of a semester (six days of a term). Students are charged the same tuition for auditing classes as for taking classes for credit. International students may not audit classes. Audited classes do not appear on the transcript, will not be considered in calculating enrollment verifications, will not fulfill the minimum registration requirement, and do not apply toward a graduate degree. In addition, audited courses may not be paid for by graduate scholarship funds.

Enrolling in Religion Courses

Graduate students are eligible to attend religion courses on a space-available basis without incurring any additional tuition costs. **Note:** No credits are earned or grades received. Details about such registrations are available from the Office of Graduate Studies, B-356 ASB, telephone (801) 422-4091.

Registration Requirements

First Semester

Because acceptance is granted for a specific semester, students are required to register for at least 2 hours in the semester or term for which acceptance has been granted, or the acceptance is forfeit. New students who do not enroll in the semester or term for which they are accepted and who wish to enroll in a subsequent semester must inform the Office of Graduate Studies immediately. Acceptance in one semester or term does not guarantee acceptance in a subsequent semester or term.

Minimum Registration Requirement

U.S. Students, Semester or Term. U.S. graduate students are required to register for at least 2 credit hours during any semester or term in which they use any university facilities, consult with faculty, or take comprehensive or oral examinations. The number of graduate credit hours for which they register must, in the judgment of the faculty advisor, accurately reflect the student's involvement in graduate study and use of university resources such as libraries, laboratories, and computer facilities. In no case will the registration be for fewer than 2 credit hours per semester.

U.S. Students, Academic Year. To retain active status and to qualify for subsequent registration, graduate students *must register for at least 6 semester hours each school year* and receive acceptable grades (no D, E, W, UW, NS, or I grades are allowed, nor are audits or correspondence courses). Students who do not fulfill this yearly requirement are dropped from their graduate programs; they lose their graduate status and must apply for readmission if they wish to continue.

International Students. International students must register for at least 9 semester hours each fall and each winter semester to fulfill U.S. Immigration and Naturalization Service requirements. Questions

should be directed to International Services (1351 WSC, Provo, UT 84602-7917, telephone [801] 422-2695).

Readmission

Upon department and graduate dean approval to resume graduate study, former graduate students who were dropped for failure to meet the minimum registration requirement, and who wish to resume their graduate studies, must submit a Recommendation to Resume Graduate Study (available from the Office of Graduate Studies), pay a \$30 nonrefundable processing fee, and submit a Reapplication Honor Code Commitment Form. International students will also need to submit new Financial Certification Forms. Students should expect their previous course work to be reevaluated and their degree requirements to reflect current expectations of the program.

Loss of Eligibility to Register

Once enrolled, a graduate student becomes ineligible to register for subsequent semesters if:

1. The student has not fulfilled the minimum registration requirement (6 hours per year).
2. The student has not submitted a program of study as required: master's students by the third week of the second semester after admission; doctoral students by the third week of the beginning of the second year.
3. The Office of Graduate Studies has not received official transcripts showing that the required prerequisite degrees have been conferred.
4. The student's time limit has expired.
5. The student has withdrawn or has been terminated by the department.
6. The student has violated the BYU Honor Code and is not cleared by the Honor Code Office.
7. The student has failed to submit an annual continuing ecclesiastical endorsement.
8. The student has graduated from the graduate program.

Financial Aid Registration Requirements

It is the student's responsibility to comply with any registration requirements established by sponsoring agents for student loans, loan payment deferrals, assistantships, internships, scholarships, and awards.

Graduate Assistants, Interns, and Award Recipients.

Graduate students receiving assistantships, awards, or internships through BYU must register for at least 2 hours per semester or for 1 hour per term. Departmental requirements may exceed these minimums, and international students must register for at least 9 semester hours each fall and winter semester.

BYU Short-Term Loans. Only degree-seeking students enrolled in day school are eligible for short-term BYU tuition loans. Since the amount borrowed is directly applied toward the cost of tuition, no minimum level of enrollment is required.

Federal Loans (Stafford Loans and Supplemental Student Loans). To qualify for federal loans, graduate students must normally register for at least 4.5 hours each semester or 2.5 hours each term.

However, the regulations require that students who have used their six-month "grace" period but wish to defer payment on a previous federal loan must be registered full-time—8.5 or more hours per semester and 4.5 or more hours per term. Independent study, audit, or workshop classes cannot be used to meet the minimum hour requirement.

Verification of Enrollment Status

A student who is enrolled for 8.5 or more credit hours a semester or 4.5 credit hours or more for a term is considered full-time for tuition purposes. International students and students receiving financial assistance may be required to register for more hours to be considered a full-time student. A student enrolled for 4.5 to 8 credit hours a semester or 2.5 to 4 credit hours a term is considered a half-time student. Graduate students may request verification of their enrollment status from the Records Office, B-150, ASB, Provo, UT 84602-1114, telephone (801) 422-2631.

Master's and doctoral students who are enrolled for fewer than 8.5 credit hours per semester can petition for full-time status. To be considered for an exception a student must:

1. Have completed all required course work and have only the thesis or dissertation to complete, or be limited to less than full-time enrollment because of a required teaching assistantship, research assistantship, or internship. (The combination of TA/RA assignment and registration must be equivalent to a full-time load, e.g. half-

time assistantship plus 6 credit hours of registration per semester.)

2. Be enrolled for at least 2 credit hours per semester or 1 credit hour per term of thesis, dissertation, project, or internship credit.
3. Be certified by his or her department as being engaged full-time (40 hours or more per week) in pursuit of a degree.

Requests for such an exception should be directed to the Office of Graduate Studies.

Withdrawal or Discontinuance

Students who wish to withdraw from the university for the current semester or term must initiate that process at the Discontinuance Office, B-150 ASB, Provo, UT 84602-1114, telephone (801) 422-7705.

ADVISEMENT

Academic Sponsor

Once accepted into a graduate program, students are assigned a department sponsor, often the department graduate coordinator, who guides their first registration and individual study until the student's graduate committee is appointed in the *first semester*.

Graduate Committees

Master's (thesis and project) committees will consist of, at the minimum, three members; doctoral committees, five members. The members of both master's and doctoral committees must be graduate faculty. In those cases when a student declares a minor, one member of the committee must be from the minor department. Departments may have additional members; nevertheless, they are intended to be *permanent* members of the student's committee.

All committee members share in the responsibility for advising and directing the student concerning course work, degree requirements, and research (thesis and dissertation) and creative work. For example, all will participate in such events as prospectus meetings, comprehensive exams, and thesis/dissertation defenses and will be responsible for the evaluation of the student's performance. The individual contribution of committee members may vary by kind, effort, and intensity. Committee formation should occur *no later* than at the time of submission of the student's program of study.

Program of Study

The program of study is a carefully considered outline that helps students fulfill all course requirements. Master's students should complete the program of study under the direction of their graduate committee during the student's first semester, and in no case later than the third week of the second semester. Doctoral students should receive approval and submit their program of study during the first year, and in no case later than the third week of the beginning of the second year of study. Students without a program of study recorded with the Office of Graduate Studies will not be able to register for subsequent semesters. Necessary changes in a student's program or committee can be made if authorized by the student's committee and department graduate coordinator.

Progress Reports

Three times a year (during the first month of fall and winter semesters and spring term) each graduate student is sent an e-mail about accessing their progress report on the AIM system. It compares the individual program of study with the courses taken and summarizes the student's progress in a program: classes completed, current registration, classes still needed, and grade point average. In addition, the progress report alerts a student to possible problems with academic status, GPA, current registration, prerequisite degrees needed, minimum registration requirements, time limits, and courses. Students are responsible to work with their departments regarding any needed changes.

DEGREE REQUIREMENTS

The following minimum standards for graduate programs have been established by the university, though it is not uncommon for departments to have higher standards. Additional information about specific requirements for each graduate program appears under individual department listings in this catalog or on the Graduate Studies Web site (<http://www.byu.edu/gradstudies>). Furthermore, most departments publish detailed information about their program requirements that is available from department offices on request. Students should consult frequently with department graduate coordinators and committee chairs.

Doctor of Philosophy Degree

Admission Requirements

An applicant seeking admission to a program leading to the doctor of philosophy degree must meet the requirements outlined in the Admissions and departmental sections of this catalog. Prospective students should consult with individual departments for specific requirements.

Course Work Requirements

Graduate committees, appointed following admission to a graduate program, will help students prepare their programs of study. The following credit requirements must be met:

1. *Credit Hours.* The minimum required for students with no master's degree is 54 semester hours beyond the baccalaureate degree; but the 54 hours may not include undergraduate (100 to 400 level) or other courses needed to fulfill prerequisite and skill requirements, or more than 18 hours of dissertation credit. Students who have earned a master's degree must complete at least 36 semester hours of additional graduate work at BYU beyond the master's degree. So long as these restrictions are met, students may, with the approval of their graduate committee, apply up to 36 hours of a master's program toward a doctoral degree. See the Credit Policies section of this catalog for information about credits that may not apply toward a graduate degree.
2. *Minor.* If a minor is required as part of a doctoral degree, a student must:
 - a. Obtain the approval of the department chair/graduate coordinator of the major and the minor departments.
 - b. Select a graduate faculty member from the minor department (approved by the department chair/graduate coordinator of the minor department) to serve as a graduate committee member.
 - c. Register for and complete 12 semester hours of approved graduate credit in the minor.
 - d. Pass an oral or a written comprehensive examination in the minor field (prepared by the minor committee member).
3. *Dissertation Credit.* A student seeking a doctor of philosophy degree must register for and complete a minimum of 18 hours of dissertation credit. No more than 18 hours may count

toward the 54 hours required, and all 18 hours may not be taken in one term or semester. Registration for dissertation credit and work on the dissertation must be concurrent.

Time Limit

Most doctoral degree programs are designed to be completed within four to five years. All doctoral degrees must be completed within eight years of the first semester of enrollment in the program.

Matriculation in a program may be terminated at any time for failure to make satisfactory progress toward the degree. See the Credit Policies section of this catalog for more detailed information about outdated credits and the time limit.

Residency

Doctoral students must register for at least two consecutive 6-hour semesters on the BYU campus.

Comprehensive Examination

Doctoral students must pass a written comprehensive examination or qualifying experience in their field under the direction of the major department. An examination is normally given when the student has completed the required course work for the doctoral degree. Some departments also require an oral portion of the comprehensive examination. In the case of a declared minor, it is expected that the examination will include subject matter from the minor field.

Oral Defense of Dissertations

The final oral examination (defense of the dissertation) must be scheduled with the Office of Graduate Studies *at least two* weeks in advance. Final examinations may not be held during the interim periods between semesters or terms. All members of the BYU academic community are invited to attend the final oral examination, but only members of the student's graduate committee may question the candidate and vote on the candidate's performance.

An unbound copy of the candidate's dissertation must be placed in the student's graduate department at least two weeks in advance of the oral examination so that interested faculty and students may review it before the examination.

Examination Results

The committee may vote to "pass," "pass with qualification," "recess," or "fail" the student.

If the decision is to pass with qualification, the committee may require minor revisions of the dissertation, strengthening of the candidate's preparation in subject matter areas, or both. When these qualifications are cleared and the committee chair has properly recorded the clearance with the Office of Graduate Studies, the student is judged to have passed the examination.

If *two or more* examiners vote to recess, the examination is recessed. This permits the candidate to reschedule (with the department and the Office of Graduate Studies) a second and final examination. The new examination cannot be held sooner than a month after the recessed examination.

If *two or more* examiners vote to fail, the examination is failed and the graduate degree program of the student is terminated.

Doctor of Education Degree

Requirements for the doctor of education degree are in many ways the same as for the doctor of philosophy degree described in the preceding section. Differences in the two programs are as follows:

Differences in Admission Requirements

In addition to the requirements included in the Admissions section of this catalog, an applicant seeking admission to a doctor of education program must either be certified as a teacher or have completed 22 semester hours of approved courses. Further, an applicant must have completed two years of successful professional experience. Prospective students should consult with individual departments for specific requirements.

Differences in Course Work Requirements

1. *Credit Hours.* EdD degrees require more hours than the minimums described for PhD programs.
2. *Dissertation Credit.* A student seeking a doctor of education degree must register for and complete a minimum of 12 hours of dissertation credit. No more than 12 hours may count toward the minimum hours required, and the 12 hours may not all be taken in one term or semester. Registration for dissertation credit and work on the dissertation must be concurrent.

Master's Degree

Admission Requirements

An applicant seeking admission to a master's degree program must meet the requirements outlined in the Admissions section and the department section of this catalog. Prospective students should consult with individual departments for specific requirements.

Course Work Requirements

Graduate committees or program advisors, appointed following admission to a graduate program, will help students prepare their programs of study. The following credit requirements must be met:

1. *Credit Hours.* A student seeking the master's degree must complete a total of at least 30 semester hours of credit (excluding prerequisite courses). See the Credit Policies section of this catalog for information about credits that may not apply toward a graduate degree.
2. *Minor.* If a minor is desired, a student must:
 - a. Obtain the approval of the department chair of the major and the minor departments.
 - b. Select a graduate faculty member (approved by the department chair of the minor department) to serve as a committee member.
 - c. Register for and complete 9 semester hours of approved graduate credit in the minor.
 - d. Pass an oral or a written comprehensive examination in the minor field (prepared by the minor committee member).
3. *Thesis Credit or Project Credit.* Students in thesis programs must register for and complete a minimum of 6 hours of thesis credit. No more than 6 hours of thesis credit may count as part of the 30-hour minimum. Registration for thesis credit (from 1 to 6 hours per semester approved by the graduate committee chair) and work on the thesis must be concurrent. For students in a project program, at least 2 project credit hours are required (see individual department requirement).

Time Limit

Most master's degree programs are designed to be completed within two years. All students must complete their programs within five years of the first semester of enrollment in the program. Matriculation in a program may be terminated at any time for failure to make satisfactory progress toward the

degree. See the Credit Policies section of this catalog for more detailed information about outdated credits and the time limit.

Full-Time Registration Requirement

In a few approved integrated master's programs, students may earn their baccalaureate and graduate degrees concurrently. Students in such integrated programs must pay graduate tuition for two full-time semesters.

Comprehensive Examination

Many master's programs require comprehensive examinations, which in combination with the defense of the thesis are the culminating experience of the master's degree.

Oral Defense of Theses or Selected Projects

The final oral examination (defense of thesis or selected project) must be scheduled with the Office of Graduate Studies *at least* two weeks in advance. Final examinations may not be held during the interim periods between semesters. All members of the BYU academic community are notified and invited to attend the final oral examination, but only members of the student's graduate committee may question the candidate and vote on the candidate's performance.

An unbound copy of the candidate's thesis or selected project must be placed in the student's graduate department at least two weeks in advance of the oral examination so that interested faculty and students may review it before the examination.

Examination Results

The committee may vote to "pass," "pass with qualification," "recess," or "fail" the student.

If the decision is to pass with qualification, the committee may require minor revisions of the thesis or selected project, strengthening of the candidate's preparation in subject matter areas, or both. When these qualifications are cleared and the committee chair has properly recorded the clearance with the Office of Graduate Studies, the student is judged to have passed the examination.

If *two or more* examiners vote to recess, the examination is recessed. This permits the candidate to reschedule (with the department and the Office of Graduate Studies) a second and final examination. The new examination cannot be held sooner than a month after the recessed examination.

If *two or more* examiners vote to fail, the examination is failed and the graduate degree program of the student is terminated.

CREDIT POLICIES

Graduate Courses

Seniors with exceptional ability may, on occasion, register for courses numbered in the 500 series but should be aware that such courses are taught at a graduate level and expectations may exceed the undergraduate's preparation.

Appropriate Credit Enrollment

Because graduate study is more rigorous than undergraduate study, a student should not register for more than 12 hours in a semester or 6 hours in a term. In many programs, even that may be too much. Furthermore, registration for thesis and dissertation credit and work on the thesis and dissertation should be concurrent and reasonable. It would be inappropriate, for example, for a student to register for all 18 dissertation credit hours in one semester or term. Students should consult with their committee chair in determining an appropriate and reasonable credit enrollment.

Restrictions on Credits That May Apply Toward a Graduate Degree

Transfer, Senior, and Post-Baccalaureate Studies (PBS) Credit

With department approval, transfer, senior, and nondegree credit may be applied toward the degree according to the individual criteria listed below. The maximum number of transfer credit hours should constitute no more than 25 percent of the total hours required for the program, not to exceed 15 credit hours in any program. Contact the Office of Graduate Studies if you have any questions.

PBS Credit. Credit taken after the baccalaureate degree has been received, but before the semester of formal admission to a graduate program, is defined as PBS credit. Such credit can be considered as part of a graduate degree program only with department approval. PBS and senior credit combined cannot exceed 10 semester hours of a graduate program.

Senior Credit. In some restricted instances students seeking a master's degree may apply credit taken

during the senior year at BYU toward that degree, but in no instances can this credit apply to both a baccalaureate and a graduate degree. Senior and PBS credit combined cannot exceed 10 semester hours of a graduate program.

Transfer Credit. Credit taken at other accredited universities in the United States or in Canada may, with department approval, count toward a graduate degree at BYU if the following conditions are met:

1. Any course to be transferred must be clearly graduate level.
2. The grade for any such course must be B or better (pass/fail courses are not transferable).
3. Home study, correspondence, and extension courses are not transferable.
4. Courses taken before a student begins graduate work at BYU must be approved during a student's first semester of study at BYU.
5. Courses taken at another university after the student has begun studies at BYU must be preapproved by graduate committee members and graduate coordinators, and the Office of Graduate Studies must be notified.
6. Credit has not already been applied to another degree.

Under certain circumstances transfer credit from accredited or certified foreign universities can be considered for transfer if all the conditions described above for transferring credit are met and the department submits a written justification that assures the following:

1. The foreign university is highly regarded and a recognized institution of higher education.
2. The content, rigor, and applicability of the courses are appropriate for the student's graduate program and will enrich the student's graduate experience.

A student may also choose to transfer the credit by successfully completing a challenge examination in the course(s).

Other BYU Credit

Lower-division courses (100- and 200-level courses), Independent Study (correspondence) courses, 300- and 400-level religion courses, and education courses numbered 514R *cannot* apply toward a graduate degree.

No undergraduate courses may apply toward a doctoral degree (except those already applied to a master's degree).

Credits Certified by Challenge Examination

In rare circumstances, and with the approval of the department and the graduate dean, up to 10 semester hours may be certified by challenge examination. For example,

1. A student may wish to transfer normally disallowed graduate credit from a nonaccredited institution or from a foreign university.
2. A student may wish to challenge a course in the program of study that covers material already mastered.

A graduate student may only challenge credit specific to the graduate program to which the student has been admitted.

Applications to take challenge examinations may be obtained from the Office of Graduate Studies. For information about challenge examination fees, see the Tuition and Fees section of this catalog.

Outdated Credit and Time Limits

Only credit taken within the time limit for each degree may count toward the degree (eight years for doctoral degrees and five years for master's degrees). Petitions to extend time limits and include outdated credit are governed by the following:

1. Departments and colleges may petition for up to a one-year extension by providing reasonable evidence that extenuating circumstances caused an unavoidable delay in the student's progress toward a degree.
2. Departments and colleges may petition to allow credit outdated by more than one year but no more than five years to apply toward a degree, but the petition must be accompanied by impressive documentation that the credit in question has been updated by courses retaken, by special readings courses in the subjects outdated, or by examinations in each of the courses.
3. No credit outdated by more than five years may apply to a current degree, regardless of circumstances.

ACADEMIC STANDARDS

Grade Point Average (GPA) Requirements

Graduate students whose graduate (program of study) GPA falls below 3.0 (prerequisite and skill courses are exempt) will not be allowed to graduate and may be dismissed from their graduate programs. Students whose grades frequently fall in the C range or below should consult with their committees about the advisability of continuing graduate study. No D credit may apply toward a graduate degree.

Annual Reviews of Graduate Students

Departments are asked to evaluate the performance of graduate students *at least once a year*; some evaluate more frequently. Students granted provisional admission should expect a review as early as the end of the first semester.

Each department establishes its own evaluation criteria and the standards it requires of graduate students, but generally students can expect to be evaluated on their total academic performance, their fulfillment of program requirements (program of study submitted, courses completed on schedule, prospectus approved by the department), and their professional performance (including quality of teaching and research). Copies of departmental evaluation criteria are available from individual departments.

Departments rate student performance as satisfactory, marginal, or unsatisfactory, indicating the reasons for a low rating, and inviting the student to respond to the evaluation or to comply with a set of stated conditions for remaining in the program.

Termination of Graduate Status

Termination of graduate status may result if a student:

1. Fails to satisfactorily complete the conditions of acceptance.
2. Fails to fulfill the university's minimum registration requirement.
3. Makes a request to withdraw (with the intent to pursue a degree at another university, for personal reasons, or in response to department recommendation).

4. Receives a marginal or unsatisfactory rating in a periodic review by the academic department and is unable or unwilling to comply with conditions for continuance outlined by the department.
5. Fails to make what the department or the university deems to be satisfactory progress toward a graduate degree.
6. Fails the departmental comprehensive examination.
7. Fails the final oral examination (defense of dissertation, thesis, or selected project).
8. Violates the university's standards of conduct or Honor Code.
9. Exceeds the time limit (five years for master's, eight years for doctoral).

Request for Review of Termination

A student dismissed or facing dismissal may request review of termination or impending termination. Such requests should be directed, in writing, to the department chair. A student who wishes further consideration may request review by the college dean. Ultimately, a final request for review may be made to the university graduate dean who, if circumstances warrant it, may appoint a committee of impartial faculty members to review the matter. All requests for review of termination must be initiated within one year of the semester in which the termination takes place.

Student Academic Grievances

The university has an established procedure for handling graduate student academic grievances. If consulting with the faculty member or the graduate committee chair does not resolve a grievance, a graduate student should describe the problem to the department graduate coordinator and/or the department chair. If difficulties persist, the student may ask the college dean and finally the graduate dean for review. All grievances must be presented within a year of the semester in question.

The Graduate Student Academic Grievance Policy can be found under the resource section of the Graduate Studies Web site (<http://www.byu.edu/gradstudies>).

EQUAL OPPORTUNITY OFFICE

D-282 ASB

Provo, UT 84602-1220

(801) 422-5895

Brigham Young University does not allow unlawful discrimination based on race, gender, color, national origin, religion, age, veteran status, or disability in the academic or employment setting. This includes unlawful sexual harassment, which is a violation of university standards as well as state and federal laws and may be considered grounds for discipline. Persons who believe they have been unlawfully discriminated against or unlawfully sexually harassed should contact the Equal Opportunity Office.

RECORDS

Office of Graduate Studies

B-356 ASB

Provo, UT 84602-1339

(801) 422-4091

The Office of Graduate Studies maintains student records pertinent to graduate study at BYU, including original applications, approved programs of study, and official transcripts received from other universities.

Records Office

B-150 ASB

Provo, UT 84602-1114

(801) 422-2631

The Records Office maintains permanent records of all academic work done at the university. The office is also responsible for issuing official transcripts of credit, which include only courses completed through BYU.

Repeating Classes

When a class is repeated, only the last grade earned counts; the grade point average is computed using the grade and credit hours earned the last time the repeated class was taken.

"R" courses are treated differently. Since an R course is one that may be repeated for credit, it is assumed that the subject matter varies from semester to semester in such a course. Therefore, when an R course is repeated, both grades count; the grade

point average is computed using the grades and credit of both classes.

Some graduate programs do not allow students to repeat required graduate courses. Those that do are governed by the following policies:

1. Brigham Young University courses may be repeated unless such courses carry an R suffix (see discussion of R suffix above).
2. A course repeated at an institution other than the one at which it was taken originally will not be counted as a repeated course.
3. Courses taken at another institution may be repeated there and the credit transferred to Brigham Young University. Students wishing to transfer credit to BYU should consult the Credit Policies section of this catalog because not all transfer courses may count toward a graduate degree.

Transcript Record Holds

A hold is placed on the record of a student who fails to meet university obligations (fees outstanding, university standards violations, traffic tickets, library fines, etc.). No copy of the transcript or information pertaining to it will be released until the obligation is fulfilled.

Confidentiality of Records Policy

The policy of Brigham Young University concerning confidentiality of student academic records reflects a reasonable balance between the obligation of the university for the instruction and welfare of the student and the university's responsibility to society. The university makes every effort to maintain student academic records in confidence by withholding information from individuals who are not authorized to receive it. Faculty and administrative officers who have a legitimate need to use students' records will be allowed access to such records as needed without prior permission from the student. The Confidentiality of Records Policy is detailed in the University Handbook and the BYU Undergraduate Catalog.

FINANCIAL ASSISTANCE

Graduate Awards

BYU offers three types of graduate awards, all through individual departments—assistantships,

private scholarships, and supplementary awards. Because teaching and research are vital components of graduate programs, most graduate awards given by Brigham Young University are in the form of teaching and research assistantships. Supplementary awards are tuition scholarships and can only be used to pay the cost of tuition. Audit credit, credit earned by special examination, or Independent Study may not be paid for by a supplementary award.

Application

New students may apply for graduate awards as part of the regular admission process. Continuing students obtain information and applications from their departments.

Requirements and Selection

To be eligible for assistantships or supplementary awards, students must be degree-seeking graduate students in good standing and must be registered for at least 2 credit hours in the semester (or 1 credit hour in the term) for which the award is granted. The awards are competitive and are determined on the basis of academic performance. All selections are made by academic departments.

Student Loans

Paul R. Conrad, Director of Student Financial Aid
A-41 ASB
Provo, UT 84602-1009
(801) 422-4104

Two types of student loans are available to graduate students who qualify—BYU loans (short-term, Woolley Law School, and Marriott School of Management) and federal Stafford Loans. Only degree-seeking students who are making satisfactory academic progress will be eligible.

Application

Application materials and information about eligibility and repayment requirements are available online at www.financialaid.byu.edu.

Deadlines

Students should submit all application materials for any BYU need-based loans and federal loans by June 1, 2004, to be assured that funds will be available to pay tuition by the fall deadline.

Student Employment

2024 WSC

Provo, UT 84602-7924

(801) 422-3561

Most student campus jobs other than assistantships and internships are listed at the Student Employment Office. Resident graduate students wishing to seek employment must be registered for a minimum of 2 credit hours. International students must be registered for a minimum of 9 credit hours to be eligible to work.

Certain governmental restrictions apply to students from foreign countries. Some students are not eligible to obtain work permits until they have been in school for one semester. The International Services Office is able to determine international student status regarding employment.

Federal immigration regulations require everyone hired in the U.S. to prove eligibility to work in America. U.S. citizens do so by presenting a social security card, state-certified birth certificate, or U.S. passport with a current BYU identification card. Non-U.S. citizens need to present a current passport with attached I-20 or I-94 documents.

GRADUATION POLICIES AND INSTRUCTIONS

All Graduate Students

Final Semester Registration

Before applying for graduation, a graduate student should have completed all course work on his or her approved program of study or be currently registered for the remaining requirements. During the final semester, or the semester of final oral and written examinations, a graduate student must either register or pay an equivalent registration fee to the Office of Graduate Studies for at least 2 semester hours of credit. Audit and independent study credits are not acceptable.

Application for Graduation (Form 8a)

Graduate students should apply for graduation by the deadlines listed in the University Graduate Studies Calendar on pages 11–13. Applications received after the deadlines will be processed for the next graduation. All students must (1) obtain the

Application for Graduation (Form 8a) from their department or the Office of Graduate Studies and (2) submit the signed Form 8a to their department. For current information please visit our Web site at www.byu.edu/gradstudies or check with your department.

After the department has completed its preliminary check and given its approval, the Office of Graduate Studies does a final check. Students will be notified by e-mail about accessing the results of this evaluation and any problems that need attention.

2004–2005 Graduation Deadlines

See the University Graduate Studies Calendar on pages 11–13 for graduation deadlines.

General Caution: The graduation deadlines are firm. Students submitting materials after the deadlines will be candidates for the *next* graduation.

Students in Dissertation, Thesis, and Selected Project Programs

Students in selected project programs must meet the same requirements as students in dissertation and thesis programs with regard to the scheduling of the final oral defense, the composition of the graduate committee, and the standards and format of the major written work. The following departments offer selected project programs: Integrative Biology, Instructional Psychology and Technology, Linguistics and English Language, Nursing, School of Technology, Statistics, and Visual Arts.

Format Requirements

Colleges and departments, not the Office of Graduate Studies, are responsible for both the content and the format of dissertations, theses, and selected projects. These works are expected to meet the highest standards of excellence in substance and in appearance. The graduate dean and the Graduate Council, in their review of graduate programs, choose dissertations, theses, and selected projects, as well as other projects, for reading and review.

Requirements regarding the number of paper copies to be submitted and the format of the title page, graduate committee approval page, final reading approval and acceptance page, abstract, etc., are described in a handout available from either the department or the Office of Graduate Studies.

All graduate students now have the option of submitting their thesis or dissertation electronically (in addition to submitting a paper version if required by the department). The requirements for electronic submission may differ from the requirements for paper submission. See the electronic thesis/dissertation (ETD) Web site at <http://etd.byu.edu> for detailed information on requirements for electronic submission.

Scheduling the Oral Defense

All students in dissertation, thesis, or selected project programs must schedule the final oral examination *at least two weeks* in advance. Final examinations may not be held during the interim periods between semesters or terms.

Copy of Work Placed in Department

All members of the BYU academic community are invited to attend the final defenses of dissertations and theses. Therefore, all students in dissertation, thesis, or selected project programs are required to place an unbound copy of their work in their department at the time the final oral examination is scheduled (two weeks in advance of the oral defense) to enable interested faculty and students to review it before the examination.

Final Copies

Ample time should be allowed for making corrections to the work after the final oral defense and before the deadline for submitting final copies to the library (December 3, 2004, for December 2004; March 18, 2005, for April 2005; and July 15, 2005, for August 2005).

Commencement and Convocation

All candidates for graduation are invited to participate in the university's commencement and convocation exercises in either April or August (students completing degrees in December are invited to participate in the following April's commencement activities). Master's and doctoral candidates are individually recognized in their respective college convocation exercises.

Honor Designations

No honor designations are given upon conferral of advanced degrees. Various honor societies, however, may nominate graduate students for membership.

Diplomas and Transcripts

Diplomas are mailed to graduates from six to eight weeks after graduation. Receipt of the degree is recorded on the student's official transcript within one month after graduation.

Letter of Completion

After a graduate student has completed all the requirements for graduation, the Office of Graduate Studies can furnish a letter of completion if the student requests it. This document certifies that the student has satisfied all the requirements for the degree and confirms when the degree will be conferred.

CAMPUS FACILITIES AND SERVICES

CULTURAL AND RECREATIONAL RESOURCES

One of the cultural centers of the intermountain region, Brigham Young University offers a wealth of opportunities for students and community members interested in the cultural arts. It is the home of four major museums—the Museum of Art, the Monte L. Bean Life Science Museum, the Earth Science Museum, and the Museum of Peoples and Cultures.

In addition to maintaining a variety of theatres, concert halls, and art galleries for study and performance in drama, music, dance, and the visual arts, BYU sponsors performing arts series that bring to the campus some of the world's most acclaimed musicians. Other offerings include the Honors Program cultural arts series and the International Cinema, which shows foreign films weekly. Moreover, BYU is associated with a professional motion picture studio and an educational television station and FM radio station that broadcast a wide spectrum of programs.

Of prime importance are the general devotional assemblies and forums, which draw together the entire campus to be addressed by prominent Church and national figures. BYUSA-sponsored lectures and college- and department-sponsored lectures by noted scholars also enhance learning.

BYU has an exceptional athletic program, which has achieved national prominence in recent years in men's basketball, football, and golf and women's volleyball and tennis. The Marriott Center, one of the largest on-campus indoor arenas in the nation, seats 23,000; and the football stadium seats 65,000. Opportunities abound for the participant as well as the spectator through BYU's large intramural program, in which thousands of students participate in more than 60 different events. BYU also has an extensive extramural program in sports such as lacrosse, softball, and soccer.

Situated at the foot of the Wasatch Mountains, BYU offers students a wealth of outdoor recreational opportunities, including some of the best skiing and

hiking in the world. Furthermore, Utah's vast desert wilderness and canyon country begins just a few hours from the campus.

Forty-five miles north of Provo is Salt Lake City, home of numerous theatrical, dance, and musical groups, among them Ballet West and the Utah Symphony.

CAMPUS SERVICES OF INTEREST TO GRADUATE STUDENTS

Most academic services for graduate students are provided at the departmental level; therefore, the following items present only the most general information. Information related to specific interests, such as employment in a particular department, is available in individual departments.

BYU GRADUATE STUDENT ASSOCIATION

All BYU graduate students are automatically part of the BYU Graduate Student Association (BYUGSA), a university-wide organization that operates in conjunction with departmental organizations. Presiding officers are elected by the BYUGSA committee and work directly with the dean of Graduate Studies and the dean of Student Life representing graduate students before the university administration. Its purposes are to:

- Enhance graduate students' participation in the larger BYU intellectual community
- Inform graduate students of research grants, seminars, and journals
- Help graduate students feel a part of the BYU community
- Advocate graduate students' needs with administration
- Offer workshops on professional and academic topics
- Connect departmental graduate student associations

BYUGSA provides workshops, a symposium, and financial aid opportunities for presenting research at

conferences. The BYUGSA council, which includes a representative from each college at the university, meets regularly to discuss the needs of the graduate student body and to make recommendations to the administration.

CAMPUS PRIVILEGES FOR GRADUATE STUDENTS

Graduate students who are registered for at least 2 hours per semester or 1 hour per term receive a university activity card (ID card) and are eligible for all on-campus privileges afforded students who are registered full-time, i.e., eligibility for on-campus employment, student housing, student insurance, intramurals, use of physical education facilities, graduate parking permits, and discount admission to sporting and cultural events. Students enrolled in the executive management programs, EMBA and EMPA, are ineligible. However, for a fee of \$45 per semester the physical education facilities are available.

ID CENTER

2310 WSC
Provo, UT 84602-7908
(801) 422-3866

The ID Center provides BYU photo identification cards to BYU students. These cards allow students the campus privileges described above. During the first two weeks of each semester or term, the photo ID cards are produced in a designated place in the Wilkinson Center. Thereafter, cards are available at the ID Center. All ID distribution locations also serve as screening areas for the dress and grooming standards outlined by the university.

OFFICE OF INFORMATION TECHNOLOGY

Information Technology Vice President and CIO: J. Kelly Flanagan, C-366 ASB, Provo, UT 84602,
(801) 422-3142
Assistant Information Technology Vice President: Kelly C. McDonald, 246 MB, Provo, UT 84602,
(801) 422-5025

The Office of Information Technology offers products, services, and support to meet the technology needs of the campus community.

- Route Y provides access to many applications, including AIM, Post Office, Testing Services,

Semester Online courses, tuition billing, the student handbook, and the BYU Telephone Directory.

- Computer Network Access allows on-campus residents and offices access to BYU's network, personal e-mail, and the World Wide Web.
- AccessPoint Labs (open computer labs located across campus) provide users basic applications such as MS Office, Internet browsers, and printing.
- AccessPoint Ports (Ethernet ports located in several buildings) allow students to connect personal, specially configured laptops to the Internet and other campus network resources.
- VCRs, video projectors, and other media equipment enhance student classroom presentations; students make requests through their class instructors.

For more information about Office of Information Technology products, please visit our Web site at <http://it.byu.edu>, or call (801) 422-4000.

VETERANS SUPPORT OFFICE

B-150 ASB
Provo, UT 84602-1113
(801) 422-2768

The Veterans Support Office certifies the enrollment of eligible veterans or their dependents for educational benefits from the Veterans Administration. Information and assistance in applying for these benefits are available from this office.

RELIGIOUS OPPORTUNITIES

Students have many excellent opportunities to participate in religious activities at BYU.

BYU Wards and Stakes

The Church of Jesus Christ of Latter-day Saints is organized on campus into a number of stakes composed of several wards of 150 to 175 members each. The stakes and wards are organized specifically to give individuals maximum opportunity for Church activity. Spiritual growth and a strong testimony of the divinity of Jesus Christ are goals fostered by the campus stake and ward organizations, whose programs are correlated at all levels with the activities of the university.

All single students living away from home who are members of The Church of Jesus Christ of

Latter-day Saints become members of one of the BYU wards. Married students not living in university housing may attend either a BYU ward or the city ward in which they live.

Other Religious Denominations

Approximately 25 other religious denominations are represented by BYU students. These students are encouraged to attend the congregation of their faith in the area.

Devotionals, Forums, and CES Firesides

University devotionals and forums, held throughout the year on Tuesdays at 11:10 a.m., provide an inspirational and integrative part of the university experience. These assemblies are occasions to celebrate the shared sense of values and community in the university.

Devotional speakers, selected from the General Authorities and other leaders of the Church and university, come to teach the gospel and affirm the spiritual dimension of the university experience for students, faculty, and staff. An additional opportunity is provided by regular Church Educational System firesides on the first Sunday of the month.

Forum speakers are noted authorities in the arts, sciences, humanities, media, and government. They are chosen for their contributions to their field and their ability to communicate their insights.

Most campus offices and services are closed during university assemblies so that members of the university community may participate.

STUDENT LIFE

Opportunities and services available through Student Life are many and varied, ranging from student (BYUSA) functions and activities to personal and career counseling, placement, health, housing, dining, and security services.

Student Life Vice President: Janet S. Scharman, A-333 ASB, Provo, UT 84602-1332, (801) 422-2387

Associate Student Life Vice President and Director, Counseling and Career Center: Ronald K. Chapman, 1500 WSC, Provo, UT 84602-5548, (801) 422-3035

Dean of Students: Vernon Heperi, 3500 WSC, Provo, UT 84602-5542, (801) 422-4668

Associate Dean of Students: Jonathan Kau, 3525 WSC, Provo, UT 84602, (801) 422-2731

Administrative Director, Student Health Services: Rulon Barlow, 2300 SHC, Provo, UT 84602-4800, (801) 378-7443

Managing Director and Chief of Police: Larry Stott, B-66 ASB, Provo, UT 84602-1008, (801) 422-2383

DEAN OF STUDENTS

3500 WSC
Provo, UT 84602-5542
(801) 422-4668

Student Leadership

3400 WSC
Provo, UT 84602-7903
(801) 422-3901

The mission of Student Leadership is to strengthen students in their social relationships, civic duty, and service to mankind. Through student leadership, the university community works together to achieve our goals that all who "enter to learn" will be prepared by training and experience to "go forth to serve."

All Brigham Young University students are invited to participate in or help plan many of the numerous programs and activities that are available through Student Leadership. For more information, call the number listed above.

Jacobsen Center for Service and Learning

Acting Director: Vernon Heperi
2010 WSC
Provo, UT 84602
(801) 422-1277

The Jacobsen Center offers the full spectrum of student engagement in service and learning.

- **Community Service Programs:** Over 30 community service programs provide service and involvement opportunities for students. Programs range from one-time activities, such as Community Outreach Day and Project Uplift, to ongoing programs, including Adaptive Aquatics and Best Buddies.
- **Tutoring Programs:** Tutoring Services, a peer tutoring program for BYU students, and the TOPS program, in which BYU students serve as tutors and mentors in Provo public schools, allow students to work on a one-on-one relationship to help others succeed academically.
- **Service Learning:** While seeking to promote service learning in the classroom, the Jacobsen

Center designates service learning courses, offers limited financial support for faculty to develop the courses, and provides guidance to assist faculty scholarship in service learning.

Student Honor Association

Coordinator: Jeannie Papic
(801) 422-4667
3400 WSC
Provo, UT 84602-7910

The Student Honor Association, a department of Student Live, has the specific purpose of encouraging character development among the campus community. It has a staff of one administrator, twelve employed students, and an ever-growing pool of volunteers.

Mission statement: To inspire individual students, empowered by a spirit of honor, to lead with strong moral character.

We accomplish this by

- Being an example in word and deed
- Encouraging students, staff, and faculty in principles of honor
- Strengthening existing commitments to Christ-centered principles
- Promoting principles of honor through activities and service
- Developing leadership in student volunteers

International Services

Director: Enoc Flores
1351 WSC
Provo, UT 84602-7917
(801) 422-2695

This office provides visa support, advisement, and services to all international students, visitors, and exchange scholars; aliens with permanent residence in the United States; and other interested parties within the university community.

Multicultural Student Services

Director: Lisa Muranaka
1320 WSC
Provo, UT 84602-7908
(801) 422-3065

Multicultural Student Services publishes the *Eagle's Eye* and helps American minority students succeed

in college work by providing the following support services:

1. **Academic Support.** The office offers personal encouragement and academic advisement to all American minority students.
2. **Financial Aid.** The office assists American minority students in securing financial aid.

University Accessibility Center

Director: Paul Byrd
1520 WSC
Provo, UT 84602-7920
(801) 422-2767 v/TTY

BYU offers a variety of services for students with physical or learning disabilities on application for services. Hearing-impaired students have access to classroom interpreters, Com-Teks, and TTY communications. Visually impaired students have access to volunteer readers, Visualteks, a talking computer with enlarged screen print, taped textbooks, and braille writers. Mobility-impaired students may receive help with arranging access to buildings on campus and note-taking services. Learning-disabled students may be helped by volunteer readers, taped textbooks, and other appropriate services.

Women's Services and Resources

Coordinator: LaNae Valentine
1526 WSC
(801) 422-4877

Women's Services and Resources, a department of Campus Life, is a comprehensive support and referral source for all BYU campus women (students, staff, faculty, spouses). Individualized help in finding and utilizing needed services and programs sponsored by the WSR, the university, and community agencies is provided.

Specific information and support is available for re-entry and single parent students (male and female).

COUNSELING AND CAREER CENTER

Associate Student Life Vice President/Director:

Ronald K. Chapman
1500 WSC
Provo, UT 84602-7906
(801) 422-3035

The Counseling and Career Center provides counseling, instruction, and support to full-time students, including the following:

- Academic support
- Career counseling and information
- Open major advisement
- Personal and group counseling
- 24-hour emergency services
- Career placement services
- Prelaw Advisement

STUDENT AUXILIARY SERVICES

Internet: www.byu.edu/stlife/sas

BYU Bookstore

3982 WSC
Provo, UT 84602-7904
Information: (801) 378-2400 (hours, information, sales promotions)
Receptionist: (801) 422-3007
Fax: (801) 422-0061
E-mail: bookstore@byu.edu
Internet: www.byubookstore.com

The BYU Bookstore is owned and operated by Brigham Young University and is a retail business with responsibilities unique to the university and its worldwide campus. The main purpose of the Bookstore is to provide course materials to students. In addition, at the end of each semester the Bookstore buys back used textbooks needed on campus for the following term.

Augmenting the Textbook Department are fourteen other departments within the Bookstore that sell nonacademic items. These departments have evolved in response to changes and demands within the university's population. The BYU Bookstore's Web site provides access to Bookstore information and products with an ever-expanding merchandise selection.

Bookstore Hours

Monday through Friday—7:50 a.m. to 6:00 p.m.
Saturday—10:00 a.m. to 6:00 p.m.

Twilight Zone Convenience Store Hours

Monday—7:30 a.m. to 7:00 p.m.
Tuesday through Friday—7:30 a.m. to 9:30 p.m.
Saturday—9:30 a.m. to 6:00 p.m.

BYU Signature Card

2310 WSC
Provo, UT 84602-1860
(801) 422-3866
E-mail: signature_card@byu.edu
Internet: www.byu.edu/stlife/sas/sc/

The Signature Card is a debit card, utilizing the university ID card. Nearly all retail outlets on campus accept the Signature Card, including Dining Services, vending machines, the Bookstore, Wilkinson Student Center retail operations, copy centers, designated copy machines, ticket offices, and computer labs. Deposits, account monitoring, and balance inquiries may be made through Route Y by selecting the "Signature Card and Meal Plans" icon. Deposits may also be made at the ASB Cashiers' Office at most locations displaying the Signature Card logo.

Billing and Customer's Rights

This notice contains important information about the cardholder's rights and Student Auxiliary Services' (SAS) responsibilities under the Federal Electronic Funds Transfer Act. To preserve the rights under this act, the cardholder must notify SAS of any clerk, billing, or statement error within sixty days of the date when the error appeared on the cardholder's statement. The cardholder may contact SAS in writing at any time or call/visit the SAS office during regular office hours from 8:00 a.m. to 5:00 p.m. Monday through Friday.

Should the cardholder lose the ID card, he or she should call the Signature Card Office at 422-3866 or notify a Dining Services cashier immediately. A flag will be placed on the cardholder's account to protect it from unauthorized users. Failure to notify the Signature Card office within two business days may increase the cardholder's liability for unauthorized transactions.

The Signature Card account is not a demand deposit account like a savings or checking account.

Money "deposited" in the cardholder's Signature Card account purchases points that may be redeemed for services at locations displaying the BYU Signature Card logo. Money may be withdrawn from the cardholder's account for emergency purposes only. A \$10 processing fee is charged for this type of transaction.

There is a \$10 processing fee to refund unused balances at the time when a Signature Card account is closed. Cardholders are encouraged to spend the remaining balance in their account to avoid the check-processing fee.

Declining balance accounts that have remained inactive for a period of six months will be assessed a \$5 service fee for each month they remain inactive. Inactive accounts without a balance will be closed. Patrons may contact Student Auxiliary Services to reopen a closed account.

At Dining Services' locations contracted meal plans are automatically assessed first. If sufficient funds are not available in a contracted meal plan to satisfy a transaction, the system will automatically cascade to the Signature Card account. Following automatic cascading, if an account still does not have sufficient funds to complete the transaction, the remaining balance will need to be paid with cash.

Brigham Young University reserves the right to set the account balance to a negative amount when the account balance has insufficient funds to post an offline-card read transaction.

Campus Accommodations

Business Office

100 SASB

Provo, UT 84602-1820

(801) 378-2611 or toll-free 1-877-403-0040

Fax: (801) 422-0837

E-mail: housing@byu.edu

Internet: www.byu.edu/housing/onc

Student housing is available both on campus and in the surrounding communities; policies have been established within campus residence halls and with off-campus landlords to integrate living experiences with the complete educational experience.

Campus Housing: Single Students

Campus housing for single students includes room-and-board residence halls and apartment-type facilities.

Deseret Towers and Helaman Halls are room-and-board facilities for men and women.

Heritage Halls offers apartment-style living for both women and men.

The Foreign Language Student Residence provides single students with hands-on experience while refining their language skills. Residents in each apartment study the same language and agree to speak only that language within their living quarters. A native speaker in each apartment provides language assistance, and in-room cable programs supply additional language training. Residents of similar languages participate in five evening meals per week, with the cost of these meals included in the complex's fees. Each apartment is completely furnished, including a dishwasher, microwave, television, and VCR. Large lawn areas and sports courts are also available.

Campus Housing: Student Families

Accommodations for 1,324 student families are provided at Wymount Terrace and Wyview Park, and each apartment is furnished with an electric or gas range, refrigerator, blinds, and garbage disposal. A limited amount of rental furniture is available from the Student Family Housing Office. Sports courts, access to the Deseret Towers and Helaman Halls swimming pools, children's playgrounds, and large lawn areas are also available. These apartments do not have washer/dryer hookups, but they do have self-service laundry facilities. A dairy products outlet is located at both Wymount Terrace and Wyview Park, and the Housing Office at Wymount Terrace has a computer lab.

Wymount Terrace is located on the northeast side of campus and has 898 one-, two-, and three-bedroom apartments. Wyview Park is located northwest of campus on University Avenue and has 426 two- and three-bedroom apartments.

Applications/Agreements for Campus Housing

Students who plan to enroll at BYU and live in a university residence hall or a student family housing complex are advised to request housing at least one year in advance. For single-student

housing, a housing agreement may be submitted online at www.byu.edu/housing/enc. A nonrefundable \$50 processing fee and a \$100 security deposit are required at the time the housing agreement is submitted. For student family housing, a completed application must be returned with a nonrefundable \$25 application fee. Placement into on-campus housing is made according to the date the application or agreement is received by the Campus Accommodations Office. Acceptance into on-campus housing is not a commitment of admission to the university.

Off-Campus Housing

2170 WSC

Provo, UT 84602-7909

(801) 422-5066

Internet: www.byu.edu/offcampushousing

The BYU Off-Campus Housing Office aids students in finding off-campus housing, encourages landlords of university-approved housing to maintain and improve rental facilities, advises students and landlords in their relationships with one another, and attempts to assure that BYU Residential Living Standards are maintained in university-approved off-campus rentals. Single BYU graduate students are encouraged, but not required, to live in university-approved housing. At present, more than 21,000 rental spaces have been approved by the university for off-campus living.

BYU Housing Referral Service

The Off-Campus Housing Office maintains a complete referral service for all university-approved rental facilities. Thousands of rental units of all types are available, including large apartment complexes, condominiums, duplexes, houses, basement apartments, and sleeping rooms. Some housing for student families is also listed, though family student housing is not subject to university approval.

Detailed lists of current vacancies are available at the Off-Campus Housing Office from 8 a.m. to 5 p.m. Monday through Friday. Listings are also available at our Web site (listed above). A renter's guide and comparative rental data on the large apartment complexes will be mailed on request or can be viewed at our Web site. Consultants are also available to help students who have problems finding suitable off-campus housing.

Ernest L. Wilkinson Student Center

The newly remodeled and expanded Ernest L. Wilkinson Student Center (WSC) serves as the gathering place for the university, a place to relax—the center of college community life. The WSC is a place where students can come to participate in out-of-class activities that foster balanced growth in a clean, modern facility and a safe, pleasant environment. Many student services have conveniently relocated to the Wilkinson Student Center, and a diversity of programs and activities there complements learning. Data connections to support personal computer access are now in most lounges.

The building opens at 6 a.m. seven days a week and closes at 11 p.m. Monday–Thursday, midnight on Friday, 11:30 p.m. on Saturday, and 10 p.m. on Sunday. Listed below are WSC businesses and services.

First Floor: Outdoors Unlimited (rental, sales, repairs, and programs), Games Center, Post Office, Campus Craft and Floral, Cougar Creations (copy center), Barbershop, Lost and Found, Computer Lab, Multicultural Student Services, International Services, Services for Students with Disabilities, Women's Services and Resources, counseling offices, several lounges, and a vending area.

Second Floor: Ballrooms, Garden Court, Memorial Hall, Terrace, Varsity Theatre, Jamba Juice, Bookstore, Cougar Food Court, Information Center, ID Center, Counseling and Career Center, Student Employment, Jacobsen Center for Service and Learning, Catering Services, and Off-Campus Housing.

Third Floor: Offices for the dean of students, Student Leadership, Student Leadership Tutoring, WSC Administrative and Business Support, Campus Scheduling, Student Life Computer Support Services, conference rooms, lounge, and access to the Bookstore.

Fourth Floor: Honor Code offices, Student Honor Association, and Faculty Center.

Fifth Floor: The *Daily Universe* (BYU's student newspaper), NEWSNET (student media organization), and KBYU news broadcasting facilities.

Sixth Floor: The Skyroom Restaurant.

STUDENT HEALTH CENTER

Director: Rulon J. Barlow
2300 SHC
Provo, UT 84602-4800
(801) 378-2771

Primary health services are available to all students, spouses, and dependents at the Student Health Center. Physician and other clinical services are available Monday through Friday from 8 a.m. until 6 p.m. by appointment or on a walk-in basis through Urgent Care. Urgent Care is also available Saturday from 8 a.m. until noon. Clinical services include immunizations, pharmacy, physical therapy, laboratory, X ray, psychiatry, psychology, podiatry, orthopedics, ENT, ophthalmology, and dietetic consultation. Hospitalization, when necessary, is available locally at the Utah Valley Regional Medical Center.

Graduate students with at least 9 credit hours per semester or 4.5 credit hours per term will be automatically enrolled in the Student Health Plan that semester/term and have continual coverage through the academic year. Graduate students with at least 2 hours of credit fall semester (or the first semester/term they are here) are eligible for student health insurance through the academic year but are not automatically enrolled. They must enroll at the Student Health Insurance Business Office by the tuition payment deadline.

Information describing the Student Health Center and the student health insurance plan is available at the center and on the Internet at www.byu.edu/shc.

UNIVERSITY POLICE

B-66 ASB
Provo, UT 84602-1008
(801) 422-2222 (Emergency: 911)
Internet: www.byu.edu/police

The University Police Department is established for the benefit and protection of students, faculty, and staff. The department's state-certified police officers are entrusted with enforcing violations of law.

All matters requiring police assistance on campus should be directed to this office.

BYU's Campus Security Report, as required by the Federal Campus Security Act, is available at <http://stlweb.byu.edu/security/index.html>, or a

paper copy can be obtained by contacting Georgia Rasmussen at (801) 422-2387.

Parking and Traffic Services

PTSB
Provo, UT 84602-0300
(801) 378-3906

Vehicle Registration and Parking Permits

Parking and traffic control are the responsibility of the University Police Parking and Traffic Services, located in the building east of the Carillon Bell Tower on 1430 North. All BYU students who intend to park on campus during restricted hours must register their motor vehicles with the Parking Division and obtain a parking permit.

To purchase a permit, students should bring their current vehicle registration, proof of emissions compliance, and BYU ID to the Traffic Office.

A limited number of parking spaces near the Law School and the Marriott School have been designated as "G-Parking" lots. Graduate students are given priority in purchasing permits for these lots. The permits do not guarantee a parking space but allow a student to park in the designated lot when space is available. The G permit costs \$80, and a voucher from the student's graduate department is required for purchase. If desired, the student may instead purchase a \$60 Y permit for general student parking. Permits are good for the academic year and expire September 15 of the following year. G permits that are not purchased until winter semester cost \$50. For more information about the procedures and deadlines for obtaining a G permit, students can contact their graduate department or the Office of Graduate Studies.

Replacement permits will only be issued when the current valid permit is returned, regardless of car accident, windshield replacement, or sale of the vehicle.

Faculty and staff employees with out-of-state plates must license their vehicles with the state of Utah and clear them for tax payment before they can receive their parking permits.

Bicycle Registration

All bicycles that are operated, parked, or stored on campus by any student, employee, or visitor must display a current bicycle license from a Utah County city. The fee for a Provo bicycle license is \$1. Provo

City bicycle licenses can be obtained at the Traffic Office.

Bicycles may not be ridden on the main campus during class breaks. To avoid impoundment and damaged locks, bicycles must be parked in authorized bicycle racks. Bicycle locks, chains, or cables may not be cut unless a uniformed police officer or traffic officer is present. BYU is not responsible to replace cut or damaged locks, cables, or chains.

Other Regulations and Information

Owner/Operators of motor vehicles operated in Utah County should be prepared to pass Utah

County Vehicle Emissions Inspection Maintenance requirements.

Neighborhoods adjoining campus are sometimes inundated with parked vehicles. Students are encouraged to obtain BYU parking permits and to park in university parking lots authorized by the permit.

Traffic regulation information may be obtained from the Parking and Traffic Services Office. It is the responsibility of all students, faculty, and staff members to obey all traffic rules and regulations.

Questions may be directed to the Parking and Traffic Services Office personnel at (801) 378-3906.

CATALOG TERMS AND ABBREVIATIONS

The following terms and abbreviations are used throughout the catalog.

Course Number. This catalog does not list courses numbered below 500. For listings of undergraduate courses, see the BYU Undergraduate Catalog. Courses numbered below 500 are undergraduate courses, courses numbered 500–599 are either graduate courses or advanced undergraduate courses, and courses numbered 600 and above (600–799) are graduate courses. Most, but not all, 500-level courses can count toward a graduate degree. Restrictions and limitations are noted in the Credit Policies section of this catalog and also in the program requirements for each department.

R. An R following the course number designates a course that may be repeated for credit.

Credit Hour Designation. The number that follows each course title is the number of semester hours of credit designated for the class.

Areas of Study	Abbreviations
Accounting	Acc
Anthropology	Anthr
Audiology and Speech-Language Pathology	ASLP
Chemical Engineering	ChEn
Chemistry and Biochemistry	Chem
Civil and Environmental Engineering	CEEn
Communications	Comms
Computer Science	CS
Counseling Psychology and Special Education	CPSE
Dance	Dance
Economics	Econ
Educational Leadership and Foundations	EdLF
Electrical and Computer Engineering	ECEn
English	Engl
School of Family Life	
Marriage and Family Therapy	MFT
Marriage, Family, and Human Development	MFHD

Geography	Geog
Geology	Geol
Health Science	Hlth
History	Hist
Humanities	Hum
Classics	Clscs
Comparative Literature	CmLit
Comparative Studies	CmpSt
Instructional Psychology and Technology	IP&T
Integrative Biology	InBio
International and Area Studies	IAS
Languages	
Arabic	Arab
Chinese	Chin
French	Fren
German	Germ
Hebrew	Heb
Italian	Ital
Latin	Latin
Portuguese	Port
Russian	Russ
Spanish	Span
Law School	Law
Linguistics and English Language	Ling
English Language	ELang
Teaching English to Students of Other Languages	ESL
Management	Mgt
Mathematics	Math
Mathematics Education	MthEd
Mechanical Engineering	MeEn
Microbiology and Molecular Biology	MMBio
Music	Music
Neuroscience Center	Neuro
Nursing	Nurs
Nutrition, Dietetics, and Food Science	NDFS
Organizational Leadership and Strategy	OrgB
Philosophy	Phil
Physical Education	PE

Physics and Astronomy	Phscs	Teacher Education	
Physiology and Developmental Biology	PDBio	Elementary Education	EIEd
Plant and Animal Sciences	PAS	Secondary Education	ScEd
Psychology	Psych	School of Technology	
Public Management, Institute of	PMgt	Construction Management	CM
Public Policy	PPol	Information Technology	IT
Recreation Management and Youth Leadership	RMYL	Manufacturing Engineering Technology	Mfg Tech
Religious Education	ReIE	Technology	TMA
Ancient Scripture	ReIA	Theatre and Media Arts	
Church History and Doctrine	ReIC	Visual Arts	
Social Work	SocW	Art History and Curatorial Studies	ArtHC
Sociology	Soc	Visual Arts Education	VAEdu
Statistics	Stat	Visual Arts Studio	VAStu

COLLEGES AND SCHOOLS

COLLEGE OF BIOLOGY AND AGRICULTURE

301 WIDB
Provo, UT 84602-5250
(801) 422-3963

Dean: R. Kent Crookston, Professor, Plant and Animal Sciences

Associate Dean, Graduate Studies: John D. Bell, Professor, Physiology and Developmental Biology

Associate Dean: Mark J. Rowe, Professor, Nutrition, Dietetics, and Food Science

The Neuroscience Center is also housed in the College of Biology and Agriculture (see Neuroscience section of this catalog).

The departments in the College of Biology and Agriculture offer the following graduate degrees:

Integrative Biology

MS Biological Science Education
MS, PhD Integrative Biology
MS, PhD Wildlife and Wildlands Conservation

Microbiology and Molecular Biology

MS, PhD Microbiology
MS, PhD Molecular Biology

Nutrition, Dietetics, and Food Science

MS Food Science
MS Nutritional Science

Physiology and Developmental Biology

MS, PhD Neuroscience
MS, PhD Physiology and Developmental Biology

Plant and Animal Sciences

MS Agronomy
MS Genetics and Biotechnology

DAVID O. MCKAY SCHOOL OF EDUCATION

301 MCKB
Provo, UT 84602-5095
(801) 422-3694

Dean: K. Richard Young, Professor, Counseling Psychology and Special Education

Associate Dean, Graduate Studies: Barbara Culatta, Professor, Audiology and Speech-Language Pathology

Associate Dean: Marie Tuttle, Professor, Teacher Education

The departments in the McKay School of Education offer the following graduate degrees:

Audiology and Speech-Language Pathology

MS Speech-Language Pathology

Counseling Psychology and Special Education

MS School Counseling Psychology
MS Special Education
PhD Counseling Psychology

Educational Leadership and Foundations

MEd, EdD, PhD Educational Leadership

Instructional Psychology and Technology

MS, PhD Instructional Psychology and Technology

Teacher Education

MA, MEd Teaching and Learning
EdD Reading

IRA A. FULTON COLLEGE OF ENGINEERING AND TECHNOLOGY

270 CB

Provo, UT 84602-1345

(801) 422-4326

Dean: Douglas M. Chabries, Professor, Electrical and Computer Engineering

Associate Dean, Graduate Studies: Richard W. Christiansen, Professor, Electrical and Computer Engineering

Associate Dean, Curriculum and Undergraduate Studies: Alan R. Parkinson, Associate Professor, Mechanical Engineering

Associate Dean, External Relations: David K. Anthony

The departments and school in the College of Engineering and Technology offer the following graduate degrees:

Chemical Engineering

MS, PhD Chemical Engineering

Civil and Environmental Engineering

MS, PhD Civil Engineering

Electrical and Computer Engineering

MS, PhD Electrical Engineering

Mechanical Engineering

MS, PhD Mechanical Engineering

Technology, School of

MS Technology

COLLEGE OF FAMILY, HOME, AND SOCIAL SCIENCES

990 SWKT

Provo, UT 84602-5535

(801) 422-2083

Dean: David B. Magleby, Professor, Political Science
Associate Dean, Graduate Studies and

Curriculum: Renata T. Forste, Associate Professor, Sociology

Associate Dean, Research and Faculty

Development: Rulon D. Pope, Professor, Economics

Associate Dean, Director, School of Family Life:

James M. Harper, Professor, Marriage and Family Therapy

The departments and schools in the College of Family, Home, and Social Sciences offer the following graduate degrees:

Anthropology

MA Anthropology

Cert Museum Practices

Family Life, School of

MS, PhD Marriage, Family, and Human Development

MS, PhD Marriage and Family Therapy

Geography

MS Geography

History

MA History

Psychology

PhD Clinical Psychology

MS, PhD Psychology

Social Work, School of

MSW Social Work

Sociology

MS, PhD Sociology

COLLEGE OF FINE ARTS AND COMMUNICATIONS

A-501 HFAC

Provo, UT 84602-5250

(801) 422-2819

Dean: Stephen M. Jones, Professor, School of Music

Associate Dean, Graduate Studies: Robert T.

Barrett, Professor, Visual Arts

The departments and school in the College of Fine Arts and Communications offer the following graduate degrees:

Communications

MA Mass Communications

Music, School of

MA, MM Music

Theatre and Media Arts

MFA Production Design

MA, PhD Theatre and Media Arts

Visual Arts

MA Art Education

MA Art History and Curatorial Studies

MFA Studio Art

COLLEGE OF HEALTH AND HUMAN PERFORMANCE

212 RB

Provo, UT 84602-2113

(801) 422-2645

Dean: Robert K. Conlee, Professor, Physical Education

Associate Dean, Graduate Studies: Thomas S.

Catherall, Professor, Recreation Management and Youth Leadership

Associate Dean: Sara Lee Gibb, Professor, Dance

The departments in the College of Health and Human Performance offer the following degrees:

Health Science

MPH Public Health

Physical Education

MS Physical Education

PhD Exercise Science

Recreation Management and Youth Leadership

MS Youth and Family Recreation

COLLEGE OF HUMANITIES

2054 JKHB
Provo, UT 84602-6001
(801) 422-2775

Dean: Van C. Gessel, Professor, Asian and Near Eastern Languages

Associate Dean, Graduate Studies: David B. Paxman, Professor, English

Associate Dean: Melvin J. Luthy, Professor, Linguistics

Associate Dean: John R. Rosenberg, Professor, Spanish and Portuguese

The departments in the College of Humanities offer the following graduate degrees:

English

MA English

French and Italian

MA French Studies

Germanic and Slavic Languages

MA German Literature

Humanities, Classics, and Comparative Literature

MA Comparative Studies

Linguistics and English Language

MA Linguistics

MA Teaching English to Speakers of Other Languages

Cert Teaching English to Speakers of Other Languages (TESOL Certificate)

Spanish and Portuguese

MA Portuguese

MA Spanish

The Collegewide Language Acquisition and Teaching Program offers an MA with specializations in the following languages:

Arabic	German
Chinese	Japanese
French	Russian

J. REUBEN CLARK LAW SCHOOL

342-A JRCB
Provo, UT 84602-8001
(801) 422-4274

Dean: H. Reese Hansen

Associate Dean: J. Clifton Fleming, Jr.

Associate Dean: Constance K. Lundberg

Associate Dean: Kevin J. Worthen

Associate Dean: Scott W. Cameron

Associate Dean: Kathy D. Pullins

Assistant Dean and Graduate Coordinator:
Carl Hernandez III

Assistant Dean: Mary H. Hoagland

Juris Doctorate (JD)

The J. Reuben Clark Law School offers a six-semester course of graduate professional study leading to the juris doctorate (JD) degree. Information about legal education, admissions standards and procedures, and related matters can be obtained from the J. Reuben Clark Law School Bulletin, which is available through the admissions office of the Law School, 340 JRCB, Provo, UT, 84602-8000, or by visiting the Law School's Web site located at www.law2.byu.edu/law_school/index.html.

Master of Laws (LLM)

The master of laws (LLM) degree is conferred upon successful completion of a minimum 24 credit hours earned during at least two semesters in residence following completion of a JD degree or its equivalent outside the United States. Information and applications are available through the admissions office of the Law School, 340 JRCB, Provo, UT 84602-8000, or by visiting the Law School's Web site at www.law2.byu.edu/law_school/index.html.

MARRIOTT SCHOOL OF MANAGEMENT

730 TNRB

Provo, UT 84602-3113

(801) 422-4121

Dean: Ned C. Hill, Professor, Business Management

Associate Dean: W. Steve Albrecht, Professor,
Accounting

Associate Dean: Lee Tom Perry, Professor,
Organizational Leadership and Strategy

The Marriott School offers both undergraduate and graduate programs. The Graduate School of Management comprises four professional programs:

Master of Accountancy

Master of Business Administration

Master of Information Systems Management

Master of Public Administration

COLLEGE OF NURSING

500 SWKT

Provo, UT 84602-5532

(801) 422-4144

Dean: Elaine Sorensen Marshall, Professor, Nursing

Associate Dean, Undergraduate Programs: Rae

Jeanne Memmott, Associate Professor, Nursing

Associate Dean, Student Affairs and Graduate

Programs: Mary Williams, Associate Professor,
Nursing

Associate Dean, Research, and Scholarship: Barbara
Mandleco, Associate Professor, Nursing

The College of Nursing offers a nationally accredited program leading to the master of science degree. Areas of specialization include Family Nurse Practitioner and Adult Medical-Surgical Clinical Nurse Specialist.

COLLEGE OF PHYSICAL AND MATHEMATICAL SCIENCES

N-181 ESC

Provo, UT 84602-4605

(801) 422-2674

Dean: Earl M. Woolley, Professor, Chemistry and
Biochemistry

Associate Dean: G. Rex Bryce, Professor, Statistics

Associate Dean: Dana T. Griffen, Professor, Geology

The departments in the College of Physical and Mathematical Sciences offer the following graduate degrees:

Chemistry and Biochemistry

MS, PhD Biochemistry

MS, PhD Chemistry

Computer Science

MS, PhD Computer Science

Geology

MS Geology

Mathematics

MS, PhD Mathematics

Mathematics Education

MA, Mathematics Education

Physics and Astronomy

MS, PhD Physics

PhD Physics and Astronomy

Statistics

MS Statistics

RELIGIOUS EDUCATION

370 JSB

Provo, UT 84602-5693

(801) 422-2735

Dean: Andrew C. Skinner, Professor, Ancient
Scripture

Associate Dean: Terry B. Ball, Associate Professor,
Ancient Scripture

Associate Dean: Matthew O. Richardson, Associate
Professor, Church History and Doctrine

Religious Education offers the following graduate
degree:

MA Religious Education

INTERDISCIPLINARY PROGRAM

PUBLIC POLICY

783 SWKT

Provo, UT 84602-5516

(801) 422-7146

Graduate Coordinator: Sven E. Wilson, Assistant
Professor, Political Science

The interdisciplinary program offers the following
graduate degree:

Public Policy

MPP Public Policy

ACADEMIC DEPARTMENTS, DEGREES, AND COURSES

SCHOOL OF ACCOUNTANCY AND INFORMATION SYSTEMS

Director: Kevin D. Stocks
Associate Director: Marshall B. Romney
Associate Director: Richard S. Dalebout

560 TNRB
Provo, UT 84602-3068
(801) 422-4959
Fax: (801) 422-0621
E-mail: soais@byu.edu
Internet: <http://marriottschool.byu.edu>

THE PROGRAM OF STUDIES

The School of Accountancy and Information Systems (SOAIS) administers two graduate programs through the Marriott School: the Master of Accountancy—MAcc; and the Master of Information Systems Management—MISM.

The master of accountancy program offers a general background in accounting, with an emphasis on business-related subjects and an in-depth study of one or more areas of accounting. The MAcc degree is awarded on completion of a professional program, which can begin as early as the junior year of the undergraduate program, and culminates in the Marriott School after the fifth year. Students entering the SOAIS program with a baccalaureate degree in accounting can complete the program in less than two years.

The master of information systems management program offers a specialization in information systems and the application of information technology in business organizations based on a general background in

business and accounting. The MISM degree is awarded at the completion of the professional program, which can begin as early as the junior year of the bachelor of information systems program and culminates in the Marriott School after the fifth year of study. Students who enter the SOAIS with a baccalaureate degree in information systems can complete the program in less than two years.

The objective of both programs is to develop graduates who exhibit professionalism and are qualified with specialized knowledge in one or more accounting or information system areas. The SOAIS seeks to educate individuals who are: (1) imbued with a strong sense of professional commitment, (2) qualified with specialized knowledge in the areas of accounting, information systems, or tax, (3) committed to continued professionalism—beyond formal education, and (4) capable of becoming leaders who exhibit high standards of ethical conduct within their chosen profession.

Two emphases are offered within the MAcc program: Professional Accountancy and Tax.

The MISM is a distinct degree separate from the MAcc degree. In addition, the SOAIS offers a joint program whereby qualified students may obtain both the MAcc and the JD degree during a specified period of time by meeting certain requirements. Inquiries regarding these programs should be directed to the SOAIS, 560 TNRB.

The SOAIS admits an average of 200 students per year into its graduate programs.

Professional Accountancy, Tax—MAcc

The Professional Accountancy emphasis is designed for students who wish to gain a broad base of graduate accounting training. Students typically seek accounting positions in auditing, management, not-for-profit, or PhD programs.

Tax emphasis graduates usually begin careers in the tax area of public accounting firms.

Admission and Entry.

- Semesters of entry: fall.
- Application submission deadline: March 1 (U.S. and international).
- Entrance examination: GMAT.
- Prerequisite: minimum 3.0 GPA; current SOAIS student (seeking BS and MAcc concurrently). Students who have received a BS degree in an area other than accounting must complete intermediate accounting 1, intermediate accounting 2, accounting systems, cost/managerial accounting, auditing, introduction to corporate taxation, and business law at a college/university in the United States prior to applying for the MAcc degree.

Requirements for the MAcc Degree.

- Common requirements: Marriott School Graduate Core consisting of MBA 520, 530, 540, 550, 593R; MBA 581, 609; PMgt 582.
- Emphases:
 - Professional Accountancy:* MBA 621–629 (choose one); ISys 580, Acc 522, 610, 630, 631, 640, 641, 650. Elective group: 9 hours, of which at least 6 must be nonaccounting, from any Marriott School course *not* selected above or other courses approved by program coordinator. Acc 343 counts as a nonaccounting course.

Tax: ISys 580, Acc 523, 603, 620, 621, 622, 623, 624. Elective group A: 3 hours from Acc 625R or 628. Elective group B: 6 hours, of which at least 3 must be nonaccounting, from any Marriott School course *not* selected above or other courses approved by program coordinator. Acc 343 counts as a nonaccounting course. Tax classes are not acceptable for group B.

Information Systems Management—MISM

The MISM program is designed for students who want professional careers in information systems. Students seek employment with consulting firms, industrial organizations, and not-for-profit entities performing a variety of services, such as understanding the information needs of an organization, designing, developing, and implementing information systems to meet specified requirements, administering the information systems function, and formulating an information systems master plan to effectively utilize information technology throughout an organization.

Admission and Entry.

- Semester of entry: fall.
- Application submission deadline: March 1 (U.S. and international).
- Entrance examination: GMAT.
- Prerequisites: minimum 3.0 GPA; current SOAIS student (seeking BS and MISM concurrently). Students who have received a BS degree in an area other than business must complete introduction to economics (micro and macro), introduction to statistics, introduction to financial and managerial accounting, introduction to management information systems and programming at a college/university in the United States prior to applying for the MISM degree.

Requirements for the MISM Degree.

- Common requirements: Marriott School Graduate Core consisting of MBA 520, 530, 540, 550, 593R; MBA 581, 609; PMgt 582.
- MISM requirements: Acc 657; ISys 644, 647. Elective group A: 3

hours from ISys 560, 590R (management topic), or 691R. Elective group B: 12 hours from group A and/or ISys 590R, 648, 649, 655. (Except for ISys 590R [separate topics], a class cannot be counted as both an A and B elective.) Elective group C: 12 hours from any MSM courses *not* already selected above or from other courses as approved by program coordinator.

FINANCIAL ASSISTANCE

The School of Accountancy and Information Systems utilizes the Marriott School's financial aid provisions. Qualified students can receive aid from the following: the Marriott School Scholarship Fund, private scholarship donations, assistantship awards, and loan assistance.

Scholarships. The Marriott School currently has over sixty-five private scholarships. Information and applications are available for second-year students in 730 TNRB (deadline: March 31). In addition, limited scholarship funds are available through the SOAIS.

Assistantships. Research and teaching assistantships are available for qualified second-year students.

Loans. Several loans are available for Marriott School students:

- Marriott School Loans: available to full-time Marriott School day students. Marriott School loans are handled on an individual basis, dependent on financial need and standing within the participating program.
- BYU Short-Term Loans: available for up to the cost of tuition only.
- Federal Stafford Loans: subsidized by the U.S. government. Not available for international students.

More information on and applications for these loans are available from the BYU Financial Aid Office, A-41 ASB, (801) 422-4104, e-mail: financial_aid@byu.edu.

RESOURCES AND OPPORTUNITIES

The N. Eldon Tanner Building. The Tanner Building, which houses the Marriott School, is one of the finest facilities of its kind. The dramatic seven-story atrium at the building center is equipped with study tables with Ethernet connections and houses the Marketplace Cafe. Surrounding the atrium are lecture and seminar rooms, study rooms, and a computer laboratory.

The Marriott School of Management. The Marriott School is recognized as one of the outstanding management schools in the nation. Faculty are actively engaged in research and publication, and they fill leadership positions in a number of national professional organizations. The school has developed innovative educational programs that include internships, executive visitation programs, special student consulting and research projects, and other activities designed to bring management education and training closer to management practice. This is accomplished, in part, through the Marriott School's National Advisory Council, and the Executives on Campus Program.

National Advisory Council.

Consisting of sixty-five to seventy prominent business and government executives, the National Advisory Council lends major support to the Marriott School. Students benefit by interacting with council members in special campus lectures and seminars and by visiting or working with these executives in their respective organizations. Furthermore, the council assists students with placement opportunities, helps develop funding sources for scholarships, and provides professional development for faculty members.

The Executives on Campus

Program. This program gives students an opportunity to interact with distinguished business and government leaders who come to campus. These executives visit classes and meet with student organizations as

well as participate in the Executive Lecture Series and Entrepreneurship Lecture Series.

COURSE DESCRIPTIONS

Accounting

507. Accounting for Nonprofit Organizations. (3)

Accounting concepts and methods peculiar to governmental units, universities, hospitals, and other nonprofit organizations.

522. Advanced Taxation. (3)

Tax laws as they apply to selected tax entities, with an introduction to tax research methodology.

523. Tax Research Methodology. (3)

In-depth treatment of research and procedures emphasizing communication and presentation of findings.

593R. Selected Topics in Accounting. (1-3)

Prerequisite: admission to Marriott School.

Subjects to be determined by department/instructor.

599R. Academic Internship: Accounting. (1-3)

On-the-job experience and training in industry, government, or public accounting firms.

603. Advanced Financial Accounting. (3)

Prerequisite: Marriott School Graduate Core.

Advanced financial accounting topics including pensions, earnings per share, accounting changes, and deferred income taxes.

610. Accounting Research Seminar. (3)

Prerequisite: admittance to MAcc.

Professional standards and professional literature of accounting and auditing; related academic research. Research tools, information technologies, and critical analysis emphasized.

611. Introduction to Academic Research. (3)

Prerequisite: admission to master's of accountancy program, PhD track.

Fundamentals of academic research, including the scientific method, the philosophy of science, and the areas and methodologies of academic research.

618. Personal Financial Planning. (1.5)

Personal financial planning issues from a CPA's perspective.

620. Special Problems in Federal Taxation. (3)

Special property transactions, accounting periods and methods, tax payments and credit, tax concepts, and reporting tax liability.

621. Corporate Taxation 1. (3)

Federal income taxation of corporations and shareholders.

622. Corporate Taxation 2. (3)

Continuation of Corporate Taxation 1. Includes consolidated returns.

623. Taxation of Partnerships. (3)

Federal income taxation of general and limited partnerships and partners.

624. Taxation of Estates, Gifts, and Fiduciaries. (3)

Federal taxation of property transferred by death and gift; federal taxation of income of trusts and estates.

625R. Current Tax Policy. (3)

Intensive study of special and current tax topics and policies.

626. Taxation of Deferred Compensation and Fringe Benefits. (3)

Federal legislation and regulations treating pensions, profit-sharing plans, and other types of deferred compensation; fringe-benefit problems.

628. Taxation of Foreign Income. (3)

Federal taxation of foreign transactions.

630. Advanced Audit 1. (3)

Prerequisite: Acc 610 or equivalent.

Auditing methodology, professional auditing standards, and current issues.

631. Assurance Services. (1.5)

Prerequisite: Acc 630 or preapproved internship.

Information needed for contemporary business decisions. Skills needed to provide value-added activities such as analyzing, interpreting, measuring, and evaluating information.

635. Fraud Audit. (1.5)

Fraud prevention, detection, investigation, issues, and methodology.

636. Advanced Audit 2. (1.5)

Prerequisite: Acc 630.

Selected advanced internal and external audit topics.

640. Advanced Professional Financial Accounting. (3)

Prerequisite: Marriott School Graduate Core; Acc 610 or equivalent.

Advanced financial accounting topics including pensions, earnings per share, accounting changes, and deferred income taxes.

641. Financial Statement Analysis. (1.5)

Prerequisite: Acc 640.

Analysis of financial statements and the accompanying footnotes. How various accounting methods might affect interpretation and use of financial information.

645. International Accounting and Multinational Enterprises. (1.5)

Accounting from an international perspective: flow of information in multiple currencies, complying with reporting requirements, setting budgets and monitoring performance, and controlling corporate assets through reports and audits.

646. Consolidated Financial Statements. (1.5)

Prerequisite: Acc 640.

Consolidated financial statements and related topics.

650. Advanced Managerial Accounting 1. (3)

Prerequisite: Marriott School Graduate Core; Acc 610 or equivalent.

Specialized areas in cost determination and cost allocation.

656. Advanced Managerial Accounting 2. (1.5)

Prerequisite: Acc 650.

Advanced managerial accounting and performance measurement issues.

657. Management Consulting and Projects. (3)

Projects-oriented course where students get hands-on experience performing consulting jobs for businesses in Utah. Class includes both in-class instruction and business experience.

692R. Advanced Topics in Accounting. (1-3)

Subject matter varies with needs of students and with instructor. May be repeated for additional credit if subject matter is different.

693R. Readings and Conference. (1-3)

Prerequisite: SOAIS director's consent.

In-depth study one-on-one with chosen professor on topic of mutual interest not currently covered in existing courses.

Information Systems

520. Business Programming. (3)

Prerequisite: admission to a Marriott School graduate program.

Accelerated business-oriented introduction to computer programming for graduate students. Principles of structured programming and component-based visual programming.

521. Database Analysis and Design. (3)

Prerequisite: admission to a Marriott School graduate program.

Concepts and techniques of database system development, focusing on conceptual modeling and methods for implementing conceptual models in business organizations.

523. Data Communications. (3)

Prerequisite: admission to a Marriott School graduate program.

Principles of data communications, local- and wide-area networks, hardware, software, media, standards, management, and business applications.

531. Enterprise Infrastructure. (3)

Prerequisite: admission to MISIM program; ISys 412 or equivalent.

Principles of IT enterprise infrastructure management, including platform choices, functionality, cost, security, deployment, controls, flexibility, and adaptability.

532. Information Architecture. (3)

Prerequisite: admission to MISIM program; ISys 413 or equivalent.

Principles of enterprise systems development; middleware and its applications; enterprise system security and control.

533. Advanced Data Communications. (3)

Prerequisite: ISys 412 or 523; or equivalents.

Design, management, and strategic use of local area networks (LANs), wide area networks (WANs), intranets, and the Internet to solve business problems.

541. Systems Design and Development. (3)

Prerequisite: admission to MISIM; ISys 411, 413; or equivalents.

Concepts and techniques of systems design, emphasizing systems development, systems development tools, and related topics.

542. Web Development. (3)

Prerequisite: ISys 403 or equivalent.

Web development techniques, including server-side and client-side processing, database integration, and advanced browser techniques.

551. Information Systems People and Organizations. (3)

Prerequisite: admission to a Marriott School graduate program.

Organizational principles for information systems professionals, including managing people and teams; change management.

552. Management Consulting and Projects. (3)

Prerequisite: BSIS core or admission to a Marriott School graduate program.

Projects-oriented course offering both in-class instruction and hands-on experience doing consulting jobs for businesses in Utah.

553. Web Consulting and Projects. (3)

Prerequisite: ISys 201 or equivalent.

Project experience with Web consulting process, including design, architecture, development, and deployment of Web solutions.

560. Information Systems Security. (3)

Prerequisite: ISys 202 and 412, or concurrent enrollment in ISys 523.

Security and control for e-business, emphasizing methods of ensuring confidentiality, authentication, message integrity, non-repudiation, access control, digital signatures, and electronic payment mechanisms.

561. Strategic Management of Information Systems. (3)

Prerequisite: admission to a Marriott School graduate program.

Key strategic and management issues of information systems in business and e-business.

562. Project Management. (3)

Prerequisite: admission to a Marriott School graduate program.

Principles and skills of project management in an information systems context, including management of risk, schedule, scope, cost, quality control, communications, human resources, and procurement.

563. Business Cycles and Controls. (3)

Prerequisite: admission to a Marriott School graduate program; Acc 210 or equivalent; ISys 201 or equivalent.

Information flows within business processes and cycles; corporate and IT governance structures to support business processes and mitigate risks.

564. Business Process Management and Information Technology. (3)

Prerequisite: Marriott School Graduate Core.

Identifying, modeling, analyzing, and reengineering business processes and effectively employing information technology throughout the organization.

580. Information Systems Tools and Applications. (3)

Prerequisite: ISys 201 or equivalent.

Applying information systems tools to business situations. Tools covered are updated with changes in the industry.

590R. Seminar in Information Systems. (1-3)

Special topics by announcement.

599R. Information Systems Internship. (1-3)

Approved on-the-job experience. Applying classroom theory and technology to actual problems; exploring career opportunities; learning role of information systems in business environment.

611. Introduction to Academic Research in Information Systems. (3)

Prerequisite: admission to MISM program, PhD track.

Conducting academic information systems research, including philosophy of science, causality, validity, research proposal development, and research methods.

612. Research Seminar. (3)

Prerequisite: ISys 611 or instructor's consent.

Empirical and quantitative research methods; information systems research publication process; hands-on practice performing research; writing and submitting academic papers.

693R. Readings and Conference. (1-3)

Prerequisite: SOAIS director's consent.

In-depth study one-on-one with chosen professor on topic of mutual interest not currently covered in an existing course.

FACULTY

ALBRECHT, CONAN, *Assistant Professor*. PhD, University of Arizona, 2000. Systems.

ALBRECHT, W. STEVE, *Professor*. PhD, University of Wisconsin, 1975. Financial; Audit.

ANDERSON, BONNIE B., *Assistant Professor*. PhD, Carnegie Mellon University, 2001. Systems.

BARRICK, JOHN A., *Assistant Professor*. PhD, University of Nebraska, Lincoln, 1998. Tax.

BLACK, ERVIN L., *Assistant Professor*. PhD, University of Washington, 1995. Financial.

BURTON, F. GREG, *Assistant Professor*. PhD, University of South Carolina, 1994. Managerial.

CHERRINGTON, J. OWEN, *Professor*. PhD, University of Minnesota, Minneapolis, 1972. Financial; Managerial; Systems.

CHRISTENSEN, THEODORE E., *Assistant Professor*. PhD, University of Georgia, 1995. Financial.

COTTRELL, DAVID M., *Associate Teaching Professor*. PhD, Ohio State University, 1992. Managerial; Audit; Financial.

DALEBOUT, RICHARD S., *Associate Professor*. JD, University of Utah, 1971. Business Law.

DEAN, DOUGLAS L., *Assistant Professor*. PhD, University of Arizona, 1995. Systems.

GARDNER, ROBERT L., *Professor*. PhD, University of Texas, Austin, 1979. Tax.

GLOVER, STEVEN M., *Associate Professor*. PhD, University of Washington, 1994. Audit; Financial; Managerial.

HANSEN, GARY W., *Associate Professor*. PhD, Indiana University, 1974. Information Systems.

HANSEN, JAMES V., *Professor*. PhD, University of Washington, 1973. Information Systems.

HENINGER, WILLIAM G., *Assistant Professor*. PhD, University of Georgia, 1997. Systems; Audit; Financial.

JACKSON, ROBERT B., *Assistant Professor*. PhD, Brigham Young University, 1994. Information Systems.

JOHNSON, PETER M., *Assistant Professor*. PhD, Arizona State University, 2003. Financial.

LEIKAM, SHANNON L., *Assistant Professor*. PhD, Oklahoma State University, 2000. Managerial.

LIDDLE, STEPHEN W., *Associate Professor*. PhD, Brigham Young University, 1995. Information Systems.

LOWRY, PAUL B., *Assistant Professor*. PhD, University of Arizona, 2002. Information Systems.

McKELL, LYNN J., *Professor*. PhD, Purdue University, 1973. Information Systems.

MESERVY, RAYMAN D., *Associate Professor*. PhD, University of Minnesota, 1985. Audit; Information Systems.

PAIK, GYUNG H., *Assistant Professor*. PhD, University of Illinois, 2000. Financial; Managerial.

PETERSON, FREDRIC G., *Assistant Professor*. PhD, University of Utah, 1973. Quantitative Methods; Managerial.

PRAWITT, DOUGLAS F., *Associate Professor*. PhD, University of Arizona, 1993. Audit; Managerial.

RADEBAUGH, LEE H., *Professor*. DBA, Indiana University, Bloomington, 1973. International Business.

RANDALL, BOYD C., *Professor*. PhD, University of Minnesota, 1972. Tax.

ROMNEY, MARSHALL B., *Professor*. PhD, University of Texas, Austin, 1977. Audit; Information Systems.

SKOUSEN, K. FRED, *Professor*. PhD, University of Illinois, 1968. Financial.

SPIPKER, BRIAN C., *Associate Professor*. PhD, University of Texas, Austin, 1993. Tax.

STEWART, DAVE N., *Professor*. PhD, University of Florida, 1980. Tax.

STICE, EARL KAY, *Professor*. PhD, Cornell University, 1988. Financial.

STICE, JAMES D., *Professor*. PhD, University of Washington, 1989. Financial.

STOCKS, KEVIN D., *Professor*. PhD, Oklahoma State University, 1981. Managerial; Information Systems.

SUMMERS, SCOTT L., *Associate Professor*. PhD, Texas A&M University, 1995. Systems.

SWAIN, MONTE R., *Professor*. PhD, Michigan State University, 1991. Managerial.

WILKS, JEFF, *Assistant Professor*. PhD, Cornell University, 1996. Financial.

WORSHAM, RONALD G., *Associate Professor*. PhD, University of Florida, 1994. Tax.

ZIMBELMAN, MARK F., *Assistant Professor*. PhD, University of Arizona, 1996. Audit; Financial.

ANTHROPOLOGY

Chair: Joel C. Janetski

Graduate Coordinator: John E Clark

945 SWKT
Provo, UT 84602-5522
(801) 422-3058

THE PROGRAM OF STUDIES

The graduate program in anthropology emphasizes archaeology. Focusing on the emergence of complex societies, simple farmers, and hunter-gatherers, the program's strength is the diversity of research opportunities it affords students, especially in Mesoamerica and the Great Basin/Southwest regions of North America.

Annual field schools in prehistoric archaeology provide training in resolving field problems. The department's geographical specialties in archaeology are the Intermountain West (which verges into the southwestern cultural area in southern Utah), Mexico, Guatemala, and the Middle East. The university conducts field research in each of those areas, and qualified students may participate.

Rather than emphasize specialized or topical interests, the program equips the graduate with the basics of professional anthropology, including preparation for continuance in academia or a career in public archaeology.

One degree and one certificate are offered through the Department of Anthropology: Anthropology—MA and the Certificate in Museum Practices. An anthropology minor is also available to students enrolled in other graduate programs. From four to six students enter the program each year, and most take three years to complete the requirements. The number of students in the program varies between ten and fifteen.

Anthropology—MA

The aim of this program is to prepare students (1) for productive employment at a junior professional

level upon receiving an MA degree or (2) for entry into PhD programs in anthropology elsewhere.

Only a broad discussion of requirements is provided here. The department sends each prospective graduate student the "Graduate Program Description," a detailed, step-by-step outline of expectations, requirements, and guidelines for progress through the program. The student must return a form indicating that he or she has read the detailed guidelines, understands them, and agrees to be governed by them. This is done because requirements sometimes change slightly in the interval between submission of catalog copy and publication of the finished catalog. By writing, calling, or visiting the department, prospective students will receive the most up-to-date and appropriate information.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international); winter, February 1 (U.S. and international).
- Application requirements: submission of a letter of intent that specifies particular areas of interest. This letter will provide the basis for assignment of a temporary faculty advisor, who will work with the applicant until a thesis committee is organized.
- Entrance examination: GRE general test score should be entered on line 11 of part D of the application form. Foreign students who do not have English as a native language must take the TOEFL exam and submit the score (577 minimum) with the application.
- Prerequisite: undergraduate degree in anthropology. If a student's bachelor's degree is not in anthropology, the student may be admitted provisionally while completing appropriate background course work. Students without previous field experience will be required to take the undergraduate field school sequence of Anthr 454R, 455R, and 456R.

Requirements for Degree.**Thesis Option**

- Credit hours (30): minimum 24 hours plus 6 thesis hours (Anthr 699R); minimum 20 hours under direct instruction of professional anthropologists at BYU or in another acceptable department at the university. Thesis, reading, internship, and individual work do not count toward these 20 hours.
- Required core courses: Anthr 501 or 510; 512, 695R, 699R, social science statistics.
- Additional courses: 9 hours from Anthr 530–590R; electives.
- Examinations: (A) written comprehensive examination at or near the end of the first year of study; (B) oral presentation of thesis proposal; (C) oral defense of thesis.
- Thesis.

Five-Year Integrated BA/MA

- The Department of Anthropology offers an integrated BA/MA that can be accomplished in five years from the start of the BA degree.
- Students who have completed 30 hours of undergraduate anthropology course work, including Anthr 305 and 405, are encouraged to take 500-level courses under either the thesis first-year option or the Mesoamerican emphasis first-year option. Upon completing 9 hours of graduate course work, students may apply to the department for admission to the integrated BA/MA five-year program. They should take the GRE early and satisfy other requirements for admission to graduate study.
- Applying students must subsequently complete their 48-hour undergraduate degree plus the first-year menu (either thesis option or Mesoamerican nonthesis option) of 18 hours of graduate work. (These menus are detailed in the program description booklet available from the department.) If accepted, such students may remain in residence and complete the second-year menu as graduate students. This should take one year.

- The five-year integrated BA/MA allows no “double counting.” However, students may apply 500-level graduate work to their 48-hour undergraduate degree, if they elect not to apply for or finish the integrated BA/MA option (provided the graduate courses fulfill the basic intents of the various menu categories of the 48-hour undergraduate degree).
- The department will not consider this option for students with substantial accumulations of undergraduate hours. Students with over 128 hours of undergraduate credit at the time of application will be required to graduate and seek admission to the graduate program under regular admission procedures.

Museum Practices—Certificate

This program’s objective is to prepare students for a broad range of museum and collections-oriented careers. Curriculum focuses on care, management, and interpretation of collections as well as the substantial body of underlying theory. Target students are (1) those desirous of pursuing a museum career as a generalist in small- to medium-sized museums and (2) those seeking employment in larger museums whose program planning is guided by collaboration across museum disciplines.

The Museum of Peoples and Cultures is the chief learning environment for certificate students. The museum’s staff, adjunct to the Department of Anthropology, are key faculty in the program, which offers a rich, hands-on, mentored experience in museum practices.

Admission and Entry.

To be considered for admission, students must be concurrently enrolled in a master’s program in anthropology, history, art history and curatorial studies, art education, humanities, or other cognate field. The certificate will not be awarded until the student completes the master’s degree.

- Semesters of entry and application deadlines: fall, February 1 (U.S.

- and international); winter, February 1 (U.S. and international).
- Application requirements: (1) a letter of intent describing career goals and how the certificate is expected to aid the student in achieving these goals and (2) a letter of endorsement, submitted under separate cover, from the chair of the department in which the student plans to get a master’s degree.
- See Admissions and Entry section under Anthropology—MA.

Requirements for the Certificate.

- Credit hours (24): 18 hours plus 6 hours of internship in an approved collections repository (Anthr 599R).
- Required core courses: Anthr 522, 524, 525, 526, 596, 599R. Students must take at least two certificate courses during their first year after admission to the program, that is, Anthr 522 in the fall semester and 525 in the pursuant winter semester. Anthr 524, 526, and 596 must be taken sequentially.
- Additional courses: one approved elective (3 hours) selected from the following: Anthr 511, 512, 590; Hist 696R; ArtHC 500, 510, 590R; or Hum 690R.
- Successfully pass a benchmark review (also coordinated with the cognate master’s department) no later than completion of the Anthr 524 course.
- Completion of a master’s degree in a cognate discipline such as anthropology, history, art history and curatorial studies, art education, or humanities.

Anthropology—Minor

A minor in anthropology can add a cross-cultural perspective, useful for people with international or multi-cultural interests in the following majors or fields of interest: nutrition, education (either elementary or secondary), educational leadership, counseling, international and area studies, psychology, social work, sociology, art, communications, theatre and film, language, business administration, public administration, applied economics, family

sciences, marriage and family therapy, geography, or history. The minor requires a minimum 15 hours. See department for specific requirements.

FINANCIAL ASSISTANCE

The Department of Anthropology offers tuition assistance to all incoming graduate students.

Additional support comes through assistantships, grants, and employment offered by the department and the Museum of Peoples and Cultures, but the funds are limited. The goal is to provide some support for many students rather than generously support a few. The department is currently developing special scholarships, work study, and project support programs for Native American students interested in careers in anthropology and museology. This is being done with the assistance of Multicultural Student Services at BYU.

The Office of Public Archaeology in the museum regularly gives employment and experience to students prepared to participate in contract archaeology projects.

RESOURCES AND OPPORTUNITIES

Museum of Peoples and Cultures. Closely associated with the Anthropology Department, the Museum of Peoples and Cultures offers unique research opportunities for students and faculty, several of whom have research offices in the museum. Located south and west of campus in Allen Hall, the museum holds a number of important archaeological and ethnographic collections that have not been systematically analyzed and reported. These collections, which represent Utah Valley, the American Southwest, and Mesoamerica, as well as other parts of the world, provide material for thesis topics, professional publications, and academic credit. The museum houses the Office of Public Archaeology, one of the most active

archaeological contracting organizations in the intermountain area. Museum publications include a technical series, occasional papers, and a popular series.

The New World Archaeological Foundation. This foundation is a research institution focused on formative Mesoamerican civilizations, especially in Chiapas, Mexico. Established in 1952, the NWAFF maintains a staff and research facilities in San Cristobal, Chiapas. The NWAFF publishes a monograph series (papers) as well as notes to disseminate research findings. Graduate student opportunities through the foundation include laboratory research on campus and limited field work in Mexico.

Joseph Fielding Smith Institute for Church History. The institute's purpose is to study the Latter-day Saint past. Its personnel are historians whose primary work is writing and publishing for professional and general Church audiences. The institute also seeks to facilitate the research of other Church history scholars by providing limited support for research and publication.

Charles Redd Center for Western Studies. Established in 1972 under an endowment from Charles Redd, a prominent Utah stockman and philanthropist, the center is charged with promoting the study of all aspects of the American West. The center publishes a monograph series, assists faculty and student research through grants and fellowships, and sponsors lectureships each year.

Jerusalem Center for Near Eastern Studies. On Mount Scopus, overlooking the Holy City, BYU's Jerusalem Center for Near Eastern Studies provides extraordinary educational opportunities for students and scholars. A seven-tiered, 120,000-square-foot structure, the center houses an extensive learning resource area, classrooms, dormitories, galleries, exhibits, a library, and auditoriums. Scholars and visitors from other universities, as well as students enrolled in its academic

programs, are served here. The center's library, for example, offers a selected collection of contemporary Holy Land readings, rare books, special collections, and accessible computer data. For information concerning opportunities for graduate study in Jerusalem, call or write the Near Eastern Studies office (211 HRCB). BYU Travel Study information can be obtained from the director of the Jerusalem Center.

Examples of current faculty and graduate student research include: socio-political complexity in Chiapas and Guatemala; development of complex society among the Maya; and hunter-gatherer ecology in the eastern Great Basin and Syro-Palestine.

For a more detailed description of the graduate program requirements, send for a copy of the department's Graduate Program Description.

COURSE DESCRIPTIONS

Undergraduate BYU anthropology students may enroll for the following courses if they have completed 30 hours in their major.

501. Archaeological Systematics. (3)

Major contributions and current developments in archaeological method and theory.

510. History of Archaeology. (3)

Historical approach to the development of archaeological knowledge, method, and theory; emphases on North America and individual contributions.

511. Museums and Cultures. (3)

Museums in society. Cultural foundations of museum content and sociology of museum use. Analyzing museum studies literature with on-site visits to area museums.

512. Heritage Resource Management. (3)

Prerequisite: admittance into graduate archaeology program or certificate in museum practices program.

Legal and ethical issues for practicing archaeologists. Preservation law, collections law, public archaeology, Native American issues, and careers in archaeology and museums.

522. Museum Practices and Technologies. (3)

Core museum disciplines: collections management, curation, education, exhibition, and conservation. Supporting technologies: database, digital photography, Web design, etc. Career paths.

524. Museology: Curation and Writing. (3)

Prerequisite: admission to certificate in museum practices program.

Professional practices supporting the educational, research, and reporting functions of museums, emphasizing museum writing leading to publication, cataloguing, policy writing, exhibition conceptualization, etc.

525. Museum Registration and Collections Management. (3)

Managing anthropological collections: object handling, object tracking, accessioning, deaccessioning, collections databases, loans, valuating collections, conservation environments, ethics, and NAGPRA and other laws relating to museums.

526. Museum Exhibitions and Programming. (3)

Prerequisite: admission to certificate in museum practices program; Anthr 524.

Instruction and practica in all aspects of exhibition development. Applying current thought and literature in museum education.

530. Great Basin Seminar. (3)

Prerequisite: Anthr 350 or equivalent.

Overview of ethnography, history of research, and prehistory of the Great Basin culture area. Current issues in archaeological research emphasized.

535. Southwest Seminar. (3)

Prerequisite: Anthr 350 or equivalent.

Overview of ethnography and prehistory of American Southwest. Current issues in archaeological research emphasized.

540. Issues in Historic Archaeology. (3)

In-depth review of issues, trends, and methods of historic archaeology.

550. (Anthr-Ling) Sociolinguistics. (3)

Research and theory in anthropological linguistics and sociolinguistics.

551. (Anthr-Ling) Anthropological Linguistics. (3)

Language in culture and society: development, typology, and description.

560. Comparative Mayan Linguistics. (3)

Grammatical, semantic, lexical, and phonological issues in comparative Mayan. Historical linguistics of the Mayan language family. Special emphasis on languages relevant to understanding classic Mayan language and script.

562. Formative Mesoamerica. (3)

Topics and issues concerning beginnings and development of Mesoamerican civilizations. Mexican and preclassic Mayan antecedents of classic Mayan civilization and culture.

564. Classic Mayan Civilization. (3)

Topics and issues concerning archaeological and cultural aspects of classic Mayan civilization and society.

565. Mayan Ceramic Analysis. (3)

Current approaches to classification and analysis of archaeological ceramics, particularly Maya Lowland pottery. Includes laboratory study of actual pottery collections from the Maya area.

566. Mayan Ethnohistory. (3)

Topics and issues of cultural change, colonization, and documentation of change processes in the Mayan region, from the postclassic period and independence from Spain.

572. Ancient Mayan Writing 1. (3)

Nature and content of Mayan hieroglyphic writing, from AD 100 to 1600. Methods of decipherment, introduction to textual analysis, and application to interpreting Mayan language, art, world view, and society. Explorations of literacy and the Mesoamerican background of Mayan script.

574. Ancient Mayan Writing 2. (3)

Prerequisite: Anthr 372 or 572.

Advanced study of Mayan hieroglyphic writing. Guided workshop with focus on inscriptions, rituals, dynastic history, and linguistic records from major Mayan cities. Emphasis on archaeological setting and preparation of technical commentaries.

575. Writing Systems. (3)

Comparative study of writing around the world, emphasizing ancient scripts. Topics include linguistic concepts; social, political, and economic function of early script; ancient literacy; development and extinction of script.

580. Near East Seminar. (3)

Current issues in Near Eastern archaeological research.

590R. Special Topics. (3)

Topics in archaeology or museum studies.

596. Museum Projects. (3)

Prerequisite: admission to certificate in museum practices program; Anthr 524, 526.

One or more supervised museum projects, such as producing an exhibition, developing educational materials, conducting inventory, or accessioning collections.

599R. Academic Internship: Federal Agency or Museum/Collections Repository. (1–6)

Prerequisite: completion of all course work for certificate in museum practices (may be taken concurrently with Anthr 596); instructor's consent.

Earning credit while employed in federal agency archaeology (BLM, U.S. Forest Service, etc.) or 320 hours in collections-holding institution (sixteen weeks half-time or eight weeks full-time).

694R. Readings. (1–3)

Prerequisite: supervising instructor's consent.

Reading about 1,000 pages per credit hour and providing required products.

695R. Research. (1–6)

Prerequisite: completion of 18 hours of 500-level core curriculum for MA program.

Field research, data acquisition, and data analysis. Must be thesis related.

699R. Master's Thesis. (1–9)

FACULTY

CLARK, JOHN E., *Professor*. PhD, University of Michigan, 1994. Archaeology; Political and Economic Institutions; Cultural Evolution; Ancient Technology.

CRANDALL, DAVID P., *Associate Professor*. DPhil, Oxford University, 1993. Social Anthropology; South Africa; Kinship, Ritual, and Symbols.

FORSYTH, DONALD W., *Professor*. PhD, University of Pennsylvania, 1979. Archaeology; Ceramic Analysis; Ethnohistory.

HARTLEY, JULIE, *Assistant Professor*. PhD, Columbia University, 2001. Cultural and Applied Anthropology; Western Europe and North America; Political and Economic Institutions.

HAWKINS, JOHN P., *Professor*. PhD, University of Chicago, 1978. Social Anthropology; Ethnicity; Kinship and Family.

JANETSKI, JOEL C., *Professor*. PhD, University of Utah, 1983. Archaeology; Ethnohistory; Hunter-Gatherer Studies.

JOHNSON, DAVID J., *Associate Professor*. PhD, University of Utah, 1987. Archaeology; Archeometry; Ancient Trade, Near East.

ASIAN AND NEAR EASTERN LANGUAGES

Chair: Dilworth B. Parkinson
Graduate Coordinator: Dana S. Bourgerie

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Provo, UT 84602-6117
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Fax: (801) 422-0028
E-mail: bourgerie@byu.edu

THE PROGRAM OF STUDIES

One degree is offered through the Department of Asian and Near Eastern Languages: Language Acquisition and Teaching (Arabic, Chinese, or Japanese)—MA. This is a collegewide program. Generally not more than two students per language are admitted each year to the acquisition program. The program is designed so that a student can complete the degree in four semesters if he or she enters with the appropriate background (see below).

Language Acquisition and Teaching (Arabic, Chinese, or Japanese)—MA

This program offers professional preparation to students seeking careers in applied linguistics, foreign language education, computer-assisted language learning and instruction, and other related areas.

Students become familiar with current theories of second-language acquisition and develop basic skills in applying that knowledge to teaching, testing, and classroom-oriented research in their language of specialization.

The program is quite flexible, with emphases varying according to students' interests and faculty members' expertise. It is ideally suited to the needs of the following types of students:

- Students who have completed undergraduate majors in foreign languages, applied linguistics, or related fields, and who are con-

templating eventual careers in academics.

- Foreign language teachers at the secondary school level who wish to further their professional education and acquire more specialized competency in their fields.
- Students seeking the necessary preparation for advanced research and work in the field of high technology applications to language learning and instruction.

Although the nature of the program is applied, the Department of Asian and Near Eastern Languages offers a broad range of supporting courses in modern and classical culture and literature within the various language groups.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: entrance examination (general test) and a fifteen-minute interview in the language of specialization addressing applicant's academic goals. The interview may be completed in person, by telephone, or on tape in conversation with a second party.
- Prerequisite: baccalaureate degree and strong background in the language of specialization. A basic linguistics background is helpful.

Requirements for Degree.

- Credit hours (33): minimum 27 course work hours plus 6 thesis hours (699R).
- Required courses: Ling 540, 600, 641, 660, 677.
- Elective courses (12 hours): advanced linguistic study of the language of specialization (3 hours), plus 9 hours as approved by the graduate committee.
- Language requirement: reading and speaking ability (202 level) in language other than English in addition to language of specialization.
- Thesis: 6 hours of 699R in language of specialization.
- Examination: oral defense of thesis.

FINANCIAL ASSISTANCE

Full or partial tuition assistance is available, depending on merit. According to department needs, students may also have opportunities to serve as research or teaching assistants to help finance their studies and to gain practical experience.

RESOURCES AND OPPORTUNITIES

The Department of Asian and Near Eastern Languages utilizes the **Humanities Research Center** for world-class computer-assisted language instruction and translation. Other resources are:

The Foreign Language Student Residence. Students who desire a more intensive language study experience and practical application of the language under the direction of faculty and native residents may apply to live in the Foreign Language Student Residence. All activities in the individual apartments in the residence are conducted in the foreign language. Housing is available for men and women in Japanese, Chinese, Arabic, and Korean languages. Graduate students may participate as students or as senior residents.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

Chinese (Mandarin)

599R. Academic Internship. (9)
Prerequisite: Chin 301.

On-the-job cultural and/or language experience.

670R. Tutorial Internship in Chinese. (1-3)

Individual research in cooperation with graduate faculty member in problems relating to Chinese literature and language. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisor.

680R. Special Studies in Chinese. (1-3)

Individual study supervised by graduate faculty member in varying topics of specific interest in Chinese literature and language.

690R. Seminar in Chinese. (1-3)

Group studies supervised by graduate faculty member in varying topics of specific interest in Chinese literature and language.

699R. Master's Thesis. (1-6)

Japanese

599R. Academic Internship. (9)
Prerequisite: Japan 301.

On-the-job cultural and/or language experience.

670R. Tutorial Internship in Japanese. (1-3)

Individual research in cooperation with graduate faculty member in problems relating to Japanese literature and language. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisor.

680R. Special Studies in Japanese. (1-3)

Individual study supervised by graduate faculty member in varying topics of specific interest in Japanese literature and language.

690R. Seminar in Japanese. (1-3)

Group studies supervised by graduate faculty member in varying topics of specific interest in Japanese literature and language.

699R. Master's Thesis. (1-6)

Linguistics

(See Linguistics and English Language section of this catalog for courses.)

Near Eastern Languages and Literature

Ancient: Akkadian, Aramaic, Coptic, Egyptian, Syriac, and Ugaritic Courses

511R. Studies in Ancient Near Eastern Languages. (2-4) On dem.

Grammar and reading skills.

521R. Special Topics in Ancient Near Eastern Literature. (2-3) On dem.

Historical and comparative studies of ancient Near Eastern literature.

Arabic

531R. Advanced Topics in Arabic. (3) On dem.

Prerequisite: instructor's consent.

Advanced studies in Arabic language and literature.

670R. Tutorial Internship in Arabic. (1-3) On dem.

Individual research in cooperation with graduate faculty member in problems relating to Arabic literature and language. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisor.

680R. Special Studies in Arabic. (1-3) On dem.

Individual study supervised by graduate faculty member in varying topics of specific interest in Arabic literature and language.

690R. Seminar in Arabic. (1-3) On dem.

Group studies supervised by graduate faculty member in varying topics of specific interest in Arabic literature and language.

699R. Master's Thesis. (1-6) On dem.

Hebrew

531R. Studies in Hebrew. (1-3) Prerequisite: Heb 331.

FACULTY

BELNAP, R. KIRK, *Associate Professor*. PhD, University of Pennsylvania, 1991. Arabic Language and Linguistics.

BOURGERIE, DANA S., *Associate Professor*. PhD, Ohio State University, 1990. Chinese Linguistics; Dialect Studies and Sociolinguistics.

CHRISTENSEN, MATTHEW B., *Associate Professor*. PhD, Ohio State University, 1994. Chinese Language and Linguistics; Curriculum Development.

GESSEL, VAN C., *Professor*. PhD, Columbia University, 1979. Japanese Language and Literature.

HONEY, DAVID B., *Professor*. PhD, University of California, Berkeley, 1988. Classical Chinese Language and Literature.

MILLER, J. SCOTT, *Professor*. PhD, Princeton University, 1988. Japanese Language and Literature.

PARKINSON, DILWORTH B., *Professor*. PhD, University of Michigan, 1982. Sociolinguistics; Arabic.

PARRY, DONALD W., *Associate Professor*. PhD, University of Utah, 1992. Modern and Biblical Hebrew.

PERKINS, GEORGE W., *Associate Professor*. PhD, Stanford, 1977. Japanese Literature.

PETERSON, DANIEL C., *Associate Professor*. PhD, University of California, Los Angeles, 1990. Medieval Islamic Philosophy; Arabic Language and Literature.

PETERSON, MARK A., *Associate Professor*. PhD, Harvard University, 1987. Korean Language and History.

RICKS, STEPHEN DAVID, *Professor*. PhD, University of California, Berkeley, 1982. Hebrew; Near Eastern Languages, History of Religions.

RUSSELL, ROBERT A., *Associate Professor*. PhD, Harvard University, 1977. Japanese; Second Language Acquisition; Computer-Assisted Instruction.

WARNICK, J. PAUL, *Associate Professor*. PhD, Ohio State University, 1996; Japanese Linguistics and Pedagogy.

WATABE, MASAKAZU, *Professor*. PhD, University of Southern California, 1978. Linguistics; Japanese.

WILLIAMS, GARY S., *Associate Professor*. PhD, University of Washington, 1973. Chinese Language and Literature.

AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY

Chair: David McPherson

Graduate Coordinator: Ron Channell

136 TLRB

Provo, UT 84602-8605

(801) 422-4318

THE PROGRAM OF STUDIES

The separate but overlapping disciplines represented by the Department of Audiology and Speech-Language Pathology involve the study of the processes and disorders of hearing, speech, and language. The department integrates principles and methods of acoustics, anatomy, psychology, linguistics, medicine, physiology, and rehabilitation to prepare students to more effectively help persons of all ages who have either congenital or acquired impairments to hearing, speaking clearly, participating in conversations, or any of the other skills that allow effective communication.

Graduate programs in the department provide a mixture of academic course work, clinical experience, and research involvement. Students are expected to master knowledge related to treating persons with disorders and to apply this knowledge in clinical activities at BYU and at other professional settings in the community. Strong performances in both course work and clinical activities are required, as is the successful completion and defense of a thesis. Because clinical training requires broad expertise, no clinically relevant topics are excluded from coverage in course work or clinical training; however, student research activities are channeled into topical areas in which faculty have focal expertise.

The master's degree programs in audiology and speech-language pathology prepare students to (A) work competently with clients of all ages in all professional settings,

(B) conduct research and communicate findings to peers and cooperating professionals, (C) meet requirements for national certification, state licensure, and school certification, (D) qualify for and excel at doctoral study if desired, and (E) maintain currency in their discipline through ongoing, independent study.

The department offers two degrees: Audiology—MS and Speech-Language Pathology—MS.

About 15 students per year are admitted into the speech-language pathology program. Students generally complete their programs in two years.

Audiology—MS

Note: The audiology program is not admitting students. Contact the department for details.

Speech-Language Pathology—MS

The discipline of speech-language pathology involves the study of the anatomy and physiology of speech production mechanisms, the normal and impaired development of speech abilities, disorders of articulation, voice disorders, stuttering and related disorders of speech rate and rhythm, speech acoustics, speech perception, and swallowing disorders. Speech-language pathology also includes the study of normal and impaired language development and language processing, the assessment of children's language and related social and cognitive abilities, the treatment of language impairments, and the assessment and treatment of aphasia.

Admission and Entry.

- Semesters of entry and application deadlines: spring, fall, February 1 (both U.S. and international students).
- Application requirements: submit GRE general test scores using the institution number R 4019. Because speech-language pathology is a clinical profession, both academic and personal qualifications are considered in selecting applicants

and in evaluating, retaining, and graduating students.

- Prerequisites: students entering a graduate program with a bachelor's degree outside speech-language pathology must complete the equivalent of the undergraduate major to meet certification and licensure requirements.

Requirements for Degree.

- Credit hours: 48 (plus all classes in the undergraduate major), including 6 hours of thesis credit and 6 hours of clinical practicum spread over several semesters or terms.
- Required courses: all the courses listed under Speech-Language Pathology.
- Minor (in related field): optional and in addition to all required major classes.
- Residence: see university residence requirements. Transfer of graduate courses taken elsewhere is not guaranteed and will be evaluated on a course-by-course basis.
- Thesis.
- Examinations: (A) pass ASHA NTE Praxis exam in speech-language pathology with score at or above the 75th percentile nationally; (B) oral defense of thesis.

Note: ASLP 680R (Public School Practicum) requires a \$60 fee in addition to tuition.

Financial Assistance

Most of the money that is available for financial assistance in the Department of Audiology and Speech-Language Pathology will be given to graduate students in the form of graduate assistantships. These assistantships involve assisting faculty in course management or research; awardees are selected by faculty from those applying for assistantships on the basis of suitability for the work needed. Other financial aid is available in the form of supplementary awards such as partial-tuition scholarships; these awards are made on the basis of academic excellence.

Resources and Opportunities.

The Department of Audiology and Speech-Language Pathology is housed in the John Taylor Building and as such is part of the BYU Comprehensive Clinic. This clinic links audiology and speech-language pathology and clinical psychology, marriage and family counseling, social work, and LDS Social Services in interdisciplinary cooperation on a variety of clinical cases. The clinic also allows for shared access to audiovisual services, computers and networks, and tests and therapy materials.

The BYU Audiology Clinic is staffed by graduate students under faculty supervision and focuses on the assessment and treatment of hearing disorders of students, faculty, staff, missionaries from the Missionary Training Center (Provo), and the public. It is also involved in monitoring the hearing ability levels of university employees for OSHA compliance and in testing the hearing of central Utah's high-risk babies in collaboration with the Utah State Health Department.

The BYU Speech and Language Clinic is also staffed by graduate students under faculty supervision and focuses on assessing and treating the speech and language disorders of students, faculty, staff, missionaries, and the public.

Research Facilities and Equipment.

Audiology and speech-language pathology use a broad range of tools for clinical diagnosis and therapy. The facilities supporting research and clinical work include 32-channel evoked potential and brain mapping, digital audio recording and editing instrumentation, sound-level meters, sound-level dosimetry equipment, spectrographic, laryngographic, and nasometric analyses of speech and voice production, stroboscopic flexible fiberoptic digital video laryngoscopy and nasoendoscopy, audiovisual equipment for conversational language sampling and analysis, and computer-assisted language sample analysis.

Course Descriptions

544. Psychoacoustics. (2)

Advanced studies in human psychoacoustics and hearing science.

600. Research Methods. (3)

Prerequisite: Stat 221 or equivalent.

Research methods in audiology and speech-language pathology. Applying statistical techniques; professional literature and writing.

601. Neurofoundations of Language, Speech, and Hearing. (3)

Neuroanatomy and neurophysiology underlying normal and impaired language, speech, and hearing processes.

616. Acoustic Impedance Measures. (1)

Middle-ear measurements and special test applications.

617. Auditory Evoked Potentials. (3)

Theoretical and practical application of electrocochleography, brain stem, middle latency, long latency, and cognitive evoked potentials.

618. Vestibular Evaluation. (2)

Theoretical and practical application of vestibular evaluation.

619. Otoacoustic Emissions. (1)

Theoretical and practical applications of otoacoustic emissions testing.

630. Child Language Intervention. (3)

Theories and practices in child language treatment.

633. Dysphagia Management. (2)

Assessment and treatment of swallowing disorders.

634. Head Trauma Management. (2)

Assessment and treatment of speech and language problems associated with traumatic brain injury.

636. Multicultural Issues in Speech-Language Pathology. (3)

Prerequisite: ASLP 350 or equivalent.

Speech and language assessment and intervention with persons from culturally and linguistically diverse backgrounds. Specific topics include cultural diversity, bilingualism, and use of interpreters/translators.

638. Advanced Hearing Tests and Measures. (3)

Advanced audiometric procedures assessing impaired hearing.

641. Hearing Aids. (3)

Assessing hearing aid performance; the art of fitting hearing aids.

642. Advanced Hearing Aids. (2)

Prerequisite: ASLP 641.

Advanced study of theory and practice of fitting and evaluating hearing aids.

657. Voice and Resonance Disorders. (3)

Assessment and treatment of disorders of the speaking voice.

658. Fluency Disorders. (3)

Assessment and treatment of fluency disorders, including stuttering.

671. Instrumentation-Calibration. (2)

Calibration of audiological instruments.

673. Pathologies of the Auditory Mechanism. (3)

Prerequisite: ASLP 334, 438; or equivalent.

Hearing disorders of outer, middle, and inner ear and central auditory pathway.

674. Communicative Disorders of Individuals with Severe Disabilities. (3)

Assessment and treatment of persons with multiple handicaps, including augmentative communication training.

675. Motor Speech Disorders. (3)

Neuropathology, symptomatology, clinical assessment, and treatment of adult motor speech disorders.

676. Aphasia. (3)

Perspectives on the neurology, clinical assessment, and rehabilitation of aphasic language disturbances in adults.

677. Computer-Assisted Language Assessment. (2)

Prerequisite: ASLP 350 or equivalent.

Evaluation and use of software for clinical analysis of children's and adults' normal or impaired language.

679. Language Impairment in Children. (3)

Impact, assessment, and treatment of language impairment in children. In-depth evaluation, including analysis of conversational behaviors.

680R. Public School Internship. (2)

685R. Practicum in Speech-Language Pathology. (1-8)

Prerequisite: instructor's consent.

690R. Seminar. (3)

693R. Directed Individual Study. (1-3)

Prerequisite: instructor's consent.

699R. Master's Thesis. (1-6)

FACULTY

BRINTON, BONNIE, *Professor*. PhD, University of Utah, 1981. Child Language Impairment.

CHANNELL, RON W., *Associate Professor*. PhD, University of Utah, 1983. Language Acquisition.

CULATTA, BARBARA, *Professor*. PhD, University of Pittsburgh, 1975. Child Language Impairment.

DROMEY, CHRISTOPHER, *Associate Professor*. PhD, University of Colorado, 1995. Speech and Voice Physiology.

FUJIKI, MARTIN, *Professor*. PhD, University of Utah, 1980. Child Language Impairment.

HARRIS, RICHARD W., *Professor*. PhD, Purdue University, 1978. Hearing Science; Perception.

MCPHERSON, DAVID L., *Professor*. PhD, University of Washington, 1972. Audiology; Hearing Science; Electrophysiology.

NISSEN, SHAWN L., *Assistant Professor*. PhD, Ohio State University, 2003. Speech Science.

BUSINESS ADMINISTRATION

Program Director: James D. Stice

635 TNRB

Provo, UT 84602-3113

(801) 422-3500

Fax (801) 422-0513

E-mail: mba@byu.edu

THE PROGRAM OF STUDIES

The master of business administration program is administered by the Marriott School of Management. It is a two-year program designed to prepare the graduate student for a career in business. The program focuses on four areas—globalization, integration, technology, and entrepreneurship. Increasingly, international focus and entrepreneurship are encouraged to better prepare the student for the world of business. Currently the program presents a new and exciting approach to teaching business management. Courses are integrated across disciplines in order to use faculty expertise from different points of view. Concept days are alternated with case study days to improve practical application.

The curriculum has been designed to achieve the twofold task of giving the student (1) a general management education and (2) depth in area(s) bearing specifically on personal professional interests.

Students choose from five designed tracks: finance, marketing, supply chain management, organizational behavior/human resource management (OB/HR), or IPD—Interdisciplinary Product Development—a track for students doing the joint MBA/MS degree. Or they can design their own track to fit their career goals.

A brief description of each track follows:

Finance

The finance track prepares students to work in corporate finance or with financial institutions. The corporate finance curriculum trains students for careers as financial analysts, controllers, and treasurers within large corporations. The financial institutions curriculum trains students for careers in investment banking, commercial banking, and securities management. The corporate finance curriculum is appropriate for students who seek general management positions with a strong finance background, whereas the financial institutions curriculum is more specialized and focused on positions in finance firms.

Marketing

The marketing track at the Marriott School builds on proven industry experience and academic achievements in the areas of marketing information systems, international brand management, and market analysis. This track prepares students for employment in product/brand management, e-commerce/database marketing, and high-technology marketing.

Supply Chain Management

The supply chain is the complete sequence of companies and value-enhancing activities required to transform basic raw materials into useful products and services for customers. Successful companies effectively manage operations within the walls of their own organization. Supply chain management is one of the fastest growing job markets for business graduates.

Organizational Behavior/Human Resource Management (OB/HR)

The OB/HR track provides a foundation for the study of organizational change and the development and strategic management of human resources. Track curriculum equips students with theoretical, analytical, diagnostic, and change agent skills. Career opportunities exist in human resource departments and organizational effectiveness or training and development positions, including responsibilities for change management, implementing business strategies, and leading organizational change efforts.

Interdisciplinary Product Development (IPD)

The IPD is an integrated program involving the Marriott School of Management, the Department of Mechanical Engineering, and the School of Technology. Through the IPD program students can earn joint MBA and MS degrees in mechanical engineering or manufacturing engineering technology. These programs emphasize integrative work on product conceptualization, marketing assessment, engineering design, and manufacturing strategies.

Students who complete the program will have (1) acquired an understanding of business and management tools and principles that have enduring significance in a changing environment, (2) developed advanced knowledge in a field of concentration in the area of the student's major interest, (3) achieved an understanding of the utilization of quantitative methods and behavioral sciences in the solution of business problems, (4) obtained skills in critical analysis and careful reasoning, and (5) strengthened their ability to communicate effectively.

In addition to the MBA, the Marriott School offers an Executive Option MBA, a joint JD/MBA, and a joint MBA/MS in mechanical engineering.

Master of Business Administration—MBA

MBA classes are generally not available to students other than those in the following programs: master of business administration, juris doctor/ master of business administration, master of public administration, or master of accountancy. All first-year MBA core classes are required for graduation.

Admission and Entry.

- Semesters of entry and application deadlines: fall, March 1 (U.S. and international).
- Application requirements: entrance examination is the GMAT.
- GPA: minimum 3.0 on 4.0 scale.
- Prerequisite: baccalaureate degree from an accredited institution; a background in college algebra or calculus, accounting, economics, and statistics; and strong computer skills.
- The MBA program requires a minimal two years of postbaccalaureate full-time work experience. The Executive MBA Option requires a minimum four years of full-time managerial experience.

Requirements for Degree.

- Required courses:
First-year program: courses in marketing management, operations management, strategy, management and information technology, managerial accounting, corporate financial reporting, business finance, human resource management, global management, written and oral communication, and the MBA Management Seminar.
Second-year program: courses in management simulation, law, ethics, designing and leading teams, and strategic implementation.
- Electives: see MBA or executive MBA policies and procedures publications. In addition to the designed tracks, students may choose to focus in the following areas: entrepreneurship, international business, strategic management, or consulting.

Executive Option—MBA

The executive master of business administration option is a rigorous program in general management for fully employed professionals. Designed for managers and professionals who typically have at least four years of full-time managerial work experience, it consists of courses similar to the full-time MBA program but is unique in reflecting the work and management experience of its students.

Obtaining an MBA degree through the executive MBA option requires a year-round commitment for two years. Class sessions are generally held two evenings each week and occasionally on Saturdays. Students spend one residency week on campus each year in a complex case analysis and other concentrated study. Executive MBA classes are generally not available to students in other programs. Special requests should be made to the Executive MBA Policy Committee, c/o the Executive MBA Office. The application deadline is May 1. For details concerning admission requirements, consult the Executive MBA Office, 635 TNRB, Provo, UT 84602-3012; telephone (801) 422-3622; fax (801) 422-0512; e-mail: emba@byu.edu.

Joint Programs—MBA/JD, MBA/MS

Two joint degrees are offered in connection with the MBA degree. The MBA/JD is a program in business administration and law offered with the J. Reuben Clark Law School.

The MBA/MS is a program of business administration and engineering. The Mechanical Engineering Department, the School of Technology, and the Marriott School of Management offer a joint program in interdisciplinary product development (IPD) leading to a master of science degree in mechanical engineering and a master of business administration (MBA) degree. The program takes an average of two and a half years to complete. The degrees are approved and conferred

separately by the two departments, but since course work for the two degrees may overlap and similarities between the two programs may be emphasized, the IPD program offers students significant advantages to separate programs in these two fields.

The IPD program addresses important needs for engineers, designers, and managers who excel in world-class product development, which is a cross-functional process requiring both technical and managerial skills. The program provides students with undergraduate training in engineering the management skills of the MBA program along with advanced training in engineering. Courses teach specific expertise in product and process development through projects, industrial interaction, and research in development and interdisciplinary methods.

Students must apply to both the mechanical engineering MS program or the technology MS program and the MBA program, mentioning their intention to participate in the IPD program in each statement of intent. After being admitted to both the MS and MBA programs, students are required to submit a brief application to the IPD program. This application is available through either the Mechanical Engineering Department or the Marriott School of Management.

Inquiries about any of these programs should be directed to the MBA Office. No joint degrees are available in combination with the Executive MBA Option.

FINANCIAL ASSISTANCE

The MBA program utilizes the Marriott School's financial aid provisions. Qualified students can receive aid from the following: the Marriott School of Management Scholarship Fund, private scholarship donations, assistantship awards, and loan assistance.

Scholarships. The Marriott School currently has over ninety private scholarships. Information and applications are available for second-year

students in 730 TNRB (deadline: March 31). In addition, the MBA program awards scholarship funds to first-year students based on academic merit and offers several private MBA scholarships. There are scholarships designated for minority students, single parents, and international students.

Assistantships. Research and teaching assistantships are available for qualified second-year students.

Loans. Several loans are available for Marriott School students:

- Marriott School loans: available to full-time Marriott School day students. Marriott School loans are handled on an individual basis, dependent on financial need and standing within the participating program.
- BYU short-term loans: available for up to the cost of tuition only.
- Federal Stafford loans: subsidized by the U.S. government. Not available for international students.

More information on and applications for these loans are available from the BYU Financial Aid Office, A-41 ASB, (801) 422-4104.

RESOURCES AND OPPORTUNITIES

Business administration students utilize the N. Eldon Tanner Building, which houses the Marriott School of Management. The dramatic seven-story atrium at the building center is equipped with study tables with Ethernet connections and houses the Marketplace Cafe. Surrounding the atrium are lecture and seminar rooms, study rooms, and a computer laboratory.

The Marriott School is recognized as one of the outstanding management schools in the nation. Faculty are actively engaged in research and publication, and they fill leadership positions in a number of national professional organizations. The school has developed innovative educational programs that include internships, executive visitation programs, special student consulting

and research projects, and other activities designed to bring management education and training closer to management practice. This is accomplished, in part, through the Marriott School's National Advisory Council and the Executives on Campus Program.

Consisting of sixty-five to seventy prominent business and government executives, the National Advisory Council lends major support to the Marriott School. Students benefit by interacting with council members in special campus lectures and seminars and by visiting or working with these executives in their respective organizations. Furthermore, the council assists students with placement opportunities, helps develop funding sources for scholarships, and provides professional development for faculty members.

The Executives on Campus Program gives students an opportunity to interact with distinguished business and government leaders who come to campus. These executives visit classes and meet with student organizations as well as participate in the Executive Lecture Series and the Entrepreneurship Lecture Series.

COURSE DESCRIPTIONS

MBA Required Courses

501. Corporate Financial Reporting. (1.5)

Analyzing financial accounting and reporting issues used by prospective managers.

502. Managerial Accounting 1. (1.5)

Objectives and procedures of cost accounting. Topics include job costing, joint product costing, cost behavior analysis, standard costs, cost allocation problems, and cost data use in management.

505. Professional and Interpersonal Communication. (2)

Developing skillful business communication techniques, particularly in writing and interpersonal influence. Learning accepted business correspondence and report-writing concepts.

510. Management and Information Technology. (1.5)

Management and control with information technology. Information flow, database design, and use applied to cost controls and managerial decision making.

520. Business Finance. (3)

Short-term financing of a business operation. Developing techniques for financial planning, such as analysis of ratios, profitability, and liquidity.

530. Operations Management. (3)

Examining issues and tools in production and operations management. Specific tools for forecasting, planning, inventory control, and project management presented and developed.

540. Organizational Behavior. (3)

Analysis of individual, group, and organization variables that inhibit or facilitate effective organizational functioning. Topics include motivation, rewards, leadership, conflict, decision making, structure, evaluation, and change.

545. Human Resource Management. (1.5)

Analysis of individual, group, and organizational variables that facilitate or inhibit effective organizational functioning. Topics include motivation, rewards, leadership, conflict, decision making, structure, evaluation, and change.

550. Marketing Management. (3)

Development of analytical marketing tools and techniques; their utilization in case analysis and decision making in marketing management.

580. Introduction to Strategy. (1.5)

Introduction to strategic planning; concepts, models, and analysis.

584. Introduction to Global Management. (1.5)

Foundations in global management integrating strategy, finance, operations, marketing, and human resource management.

591R. Integrative Exercise. (0.5–3)

Integrated applications of case analysis and presentation skills. Group work to analyze cases and formulate recommendations, followed by professional presentations to groups representing management.

592. Management Simulation. (1)

Integrating functional areas of business through use of a management simulation game.

593R. Management Seminar. (0.5)

Invited guests speak on topics of general management interest ranging from ethics, industry problems and opportunities, and government policies to relevant current events.

603. Dynamics of Law. (1.5)

Legal techniques and approaches necessary to understand dynamics between the law and business transactions. Includes the court systems, torts, criminal law, and contracts.

604. Business Ethics. (1.5)

Basic issues, concepts, and tools of management ethics; includes ethical theory, character ethics, and social responsibility, all taught in a gospel context.

646. Designing and Leading Teams. (1.5)

Topics include effective team structure and composition, individual and group autonomy, power and influence, and team conflict.

680. Strategy 2. (1.5)

Continuation of studies in strategic planning; applying concepts, models, and analysis.

681. Strategic Implementation. (1.5)

Top-management approach to the problems of determining corporate strategy.

MBA Electives

506. Written and Oral Communication 2. (1)

Continuation of MBA 505. Analysis of oral communication techniques in practice and limited theory. Oral presentation experience before video cameras with expert feedback. Self-improvement in written and oral communications.

513R. E-Business Topics. (1–3)

Current and relevant topics in e-business. Course content varies by section and instructor. May cover e-business topics relating to strategy, marketing, operations, accounting, and technology.

525. Economy of Strategy. (1.5)

Economic tools that influence the success of strategy (creation and appropriation of value). Emphasizes application of economic theory to management practice.

526. Money and Banking. (1.5)

Process whereby financial institutions, the public, the Federal Reserve, and the Treasury interact in the macroeconomy to create money and influence interest rates.

527. Financial Statement Analysis. (1.5)

Analysis of financial statements and accompanying footnotes. How various accounting methods might affect interpretation and use of financial information.

531. Principles of Supply Chain Management. (3)

Prerequisite: MBA 530.

Managing multi-company chain of value-enhancing activities, flows, and relationships—basic materials to ultimate consumer. Materials management, benefit and information sharing, design, alliances, and vendor qualification.

532. Purchasing and Supply Management. (3)

Prerequisite: MBA 530.

Upstream supply chain activities of supplier selection, management, and development. Topics will include negotiations, costing, product development, and commodity analysis.

535. Integrated Product Development (IPD) Seminar. (0.5)

Prerequisite: admission to IPD program. Other interested students may attend without receiving credit.

Review of research in product and process development; reports on internships; and guest speakers on the topic of product and process development.

536. Training and Development. (3)

Analyzing learning theories, training methods and strategies, training and development applications, and production and use of current technology for training and human resource development.

538. Managing Entrepreneurial Firms and Family Businesses. (3)

Issues and problems facing managers of entrepreneurial enterprises and leaders of family-owned businesses. Includes start-up, growth, and exit strategies. Consulting project required.

539. Theory and Practice of Third-World Development. (3)

Paradigms of economic development; strategies and applications in various societies.

541. Paradigms in Organizations. (3)

Introduction to the development of paradigms in organizations. Implications of these paradigms for understanding and influencing behavior in organizations.

542. Organizational Theory. (3)

Theoretical foundations for organizational diagnosis, particularly emphasizing building diagnostic models and frameworks.

543. Dynamics of Organizational Change: Interventions and Strategies. (3)

Forces operating to induce or resist change in organizations; current models and methods for organizational intervention and the intervention process.

544. Dynamics of Groups and Work Teams. (3)

Group dynamics and process in organizations. Theory and skill development applied to both individual roles in groups and effective work teams.

546. Human Resource Management Skills. (3)

Required skills and competencies, including selection, compensation, performance evaluation, training evaluation, organizational assessment, and research methodology.

547. Labor Relations. (3)

Overview of industrial relations and collective bargaining; evolution of unionism and labor-management relations, labor law, union-organizing campaigns, contract negotiation, and arbitration procedures.

548. Strategic Human Resource Management. (3)

HRM from manager's perspective. Employment relationship, recruiting/selection, employment law, performance management, and HRM in emerging companies. Managing human assets within firm's strategy, industry, and stakeholder environment.

549R. Professional Seminar in Organizational Behavior. (0.5-3)

Special topics or problems varying from semester to semester, e.g., conflict resolution, power and influence, intergroup relations, career development and planning, and management skills.

553. Pricing and Positioning Tools for Marketing. (3)

Developing computer-based statistical analysis skills for marketing to enhance the decision-making and strategic thinking abilities of marketing managers. Topics include segmentation, targeting, positioning, and pricing.

554. Internet Marketing. (3)

Marketing strategy for business on the internet: marketing research, sales, and promotional concepts.

555. Competitive Intelligence. (3)

Overview of competitive intelligence process, including information collection, intelligence analysis, dissemination, ethics, and establishing the process from a managerial perspective.

556. Advertising and Promotion. (3)

Key issues facing marketing managers when promoting products and services. Cases, readings, and research on the elements of effective communication strategies and promotional programs.

581. Strategic Management. (3)

Prerequisite: MAcc/MISM major status.

Top-management approach to problems of determining corporate strategy. Structured for accounting and information systems students.

590R. Consulting Field Study. (1-6)

Working as a team with faculty and management in strategic consulting projects for local, national, and international business.

596R. Business Language 1. (3)

For experienced speakers of the language being taught. Emphasizes business concepts; practice and case study including conversing, reading, and presenting, while enriching business vocabulary.

599. Academic Internship: Practicum. (1-9)

Internship providing hands-on experience in management positions.

600. Spiritual Issues in Management. (3)

Management issues including leadership, motivation, wealth, balance, hiring, firing, and reward systems; applying spiritual insights from LDS standard works. Presentations by business faculty and religious leaders.

601R. MBA Newsletter Practicum. (1.5-3)

Journalistic writing, layout, graphics, software, and distribution principles during creation of an MBA newsletter.

602. Federal Income Taxation. (3)

Analysis of business transactions for their tax factors. Basic structure of the law and implications of both personal and corporate income tax.

605. Decision Analysis. (1.5)

Applying analytical decision-making tools to management situations using spreadsheet decision models based on concepts of risk, uncertainty, and multiple criteria.

606. Optimization. (1.5)

Applying analytical decision-making tools to management situations, emphasizing spreadsheet decision models that optimize a key variable, subject to constraints.

607. Statistics. (1.5)

Review of basic statistics as applied to common problems in business management and finance.

608. Simulations. (1.5)

Prerequisite: MBA 607 or equivalent.

Applying Monte Carlo and systems simulation, along with appropriate software, to address management problems.

609. Communication in Professional Service Firms. (3)

Prerequisite: MAcc/MISM major status.

Theory and application of written and oral communication for professional service firms.

612. Business Strategy in the New Economy. (3)

Prerequisite: MBA 580.

Investigation of the effect of the Internet on business and industry structure. New strategy opportunities and threats imposed by this new technology.

613R. E-Business Topics. (1-3)

Current and relevant topics in e-business. Course content varies by section and instructor. May cover e-business topics relating to strategy, marketing, operations, accounting, and technology.

617. Risk Management. (3)

Management of risk exposures in a business setting. Identifying, measuring, and dealing with both traditional insurable risks and financial risks.

619. Services Management. (3)

Prerequisite: introductory operations management course or instructor's consent.

Management principles and characteristics of service industries and service aspects of supply chains. Sources of strategic advantage in services. Process analysis and tools. Service quality.

620. Personal Financial Planning. (3)

Financial decision making for households: income tax, retirement and estate planning, investment strategy, portfolio management, and personal risk management. Business interests affecting personal finances.

621. Advanced Corporate Finance. (3)

Issues such as mergers/acquisitions, valuation, financial restructurings, leveraged buyouts, capital structure, international portfolio analysis, tax-driven decisions, leasing, recapitalizations, and industry restructurings.

622. Investments. (3)

Basic principles and techniques of investment analysis and portfolio selection and management. Portfolio policies available to investors.

623. Investment Theory and Evidence. (3)

Modern investment theory and evidence, including asset pricing models, options pricing, the efficient markets hypothesis, portfolio diversification, and performance measures.

624. Capital and Security Markets. (3)

Functions and instruments of capital markets: relationships to money markets, historical background, structures, and analysis of significant economic problems and trends in the markets.

625. Management of Financial Institutions. (3)

Problems and policies of financial institutions, including competition for funds, asset liability management, capital management, strategic diversification, and shaping of competitive strategy.

626. Derivatives and Fixed Income. (3)

Prerequisite: MBA 622.

Valuing and using derivative and fixed-income securities. Key concepts include equilibrium pricing, arbitrary pricing, and financial engineering.

627. International Finance. (3)

Impact that currency, tax, and capital market variations between countries have on sourcing of funds, management of working capital, investment of funds, and protection of assets. Understanding the foreign exchange market.

628. Issues in Global Trade and Finance. (3)

Global market issues for public and private sectors. Impacts of trade and economic integration; global rule of financial markets and institutions.

629. Silver Fund. (3)

Team management of actual investment portfolios for a full year. Responsibility for economic forecasts, security selection, and portfolio strategy. Students apply for a position of management in the spring for the following year. Selections for participation made by faculty committee.

634. Quality Management. (3)

Concepts of quality management; strategic issues, philosophies, and tools used to implement and control quality.

635. Managerial Finance. (1.5)

Prerequisite: first-year core MBA finance courses.

For non-finance track MBA students who would like some additional corporate finance training.

636. Operations Management Seminar. (3)

Cases, readings, and research on current industrial practices and problems in production and operations management.

638. Strategic Issues in Manufacturing. (3)

Interface of strategy and manufacturing. Topics include: capacity and facilities management, work force management, quality management, technology management, vertical integration, manufacturing infrastructure, manufacturing interface with other functions, and incorporating manufacturing in corporate strategy.

639. Product Development: Market to Concept. (3)

Prerequisite: graduate standing as a student in the MBA, MeEn, or Mfg or instructor's consent.

Strategies, processes, tools, and methods in product development, focusing on initial stages of market and competitive assessment to concept development.

640. Leadership. (1.5)

Understanding and building individual leadership skills required for a global business environment.

641. The Consultative Process. (3)

Consulting skills and practice: philosophy, interventions, tools, and theories. Consulting project required.

642. Research Design and Data Analysis. (3)

Philosophy of science as it relates to research methodology; both qualitative and quantitative methods of data gathering and analysis.

643. Advanced Human Resource Management. (3)

Advanced analysis of human resource functions (staffing, performance evaluation, compensation and benefits, etc.) emphasizing selected new developments in the HR field such as certification.

644. Diversity and Discrimination in Organizations. (3)

Dynamics of difference and discrimination in organizations, considered from three perspectives: interpersonal, intergroup, and institutional. Model for helping managers analyze discrimination and work more effectively with different employee populations.

645. Managing People and Cultures. (3)

Understanding and utilizing cultural frameworks for business. Differences among organizational, ethnic, and national culture. Effective people management for global competitive advantage.

647. Knowledge Management. (3)

Processes of social and organizational learning at the individual, group, and organizational levels. Processes and practices by which knowledge is acquired, shared, and applied.

648. Capstone: Integrating Theory and Practice. (3)

Applying OBHR knowledge and practitioner change models to enhance organizational effectiveness and business performance. Requires demonstrating utility of theory for individual, team, or organizational change.

649 Practicum in Organizational Development. (0.5–6)

Completing and analyzing an organizational development project under supervision of a faculty member and a recognized professional person in an organization.

650. Marketing Research and Information Systems. (3)

Consulting course that blends marketing theory and practice and for which a commissioned, proprietary, marketing research project is the major component. Problem identification and definition, descriptive research techniques, uni- and multi-variate analysis, and development of actionable recommendations based on market data.

654. Sales Management. (3)

Personal selling and sales management, including strategic role of personal selling; business to business selling; organizing, directing, and compensating the sales force; and evaluating sales performance.

656. Business Negotiating. (3)

Managerial negotiating skills through frequent student one-on-one and group negotiations that are videotaped and then reviewed.

657. Brand Management. (3)

Developing and managing consumer and international products: product selection, line planning, brand management, packaging, market testing, government regulations, market launch, and competitive strategy.

658. International Marketing. (3)

Institutions and techniques related to marketing goods and services in other countries: international dimensions of product, price, distribution channels, and promotion as they are adjusted to meet social, cultural, and political environments found in other countries.

659. Business-to-Business Marketing. (3)

Company and institutional markets, managing R&D and technical product development, building and managing customer relationships and service, and competitive bid pricing in business market environment.

660. Marketing and Strategy. (3)

Strategic market analysis and development and implementation of a strategic marketing plan for a new product, new business, or an ongoing operation.

667. Entrepreneurial Finance. (1.5)

Key skills needed to finance a business enterprise: financing, valuing companies, corresponding equity instruments, and determining percentage of ownership initially granted to founders versus investors.

668. Entrepreneurial Marketing. (1.5)

Marketing strategies for start-up companies. Topics include marketing to investors, internal marketing, and marketing products/services without a marketing budget.

669. Entrepreneurial Strategy. (3)

Developing and applying strategies in emerging businesses, focusing on strategic business models, capital acquisition, and competitive differentiation in new businesses, especially e-businesses. Students consult directly with businesses.

671. Entrepreneurial Perspective. (3)

Developing awareness of and ability to apply existing knowledge about entrepreneurship to make better decisions when starting, growing, and harvesting business ventures.

678. E-Business Technology and Entrepreneurship. (3)

Key issues and problems facing managers in start-up e-business and IT companies. Team-taught by professors and entrepreneurs; particularly helpful for students starting IT businesses.

679. Creating and Managing New Ventures. (3)

Key issues and problems facing managers in start-up companies. Team-taught by professors and entrepreneurs; particularly helpful for students starting businesses.

682. Ethics, Business, and Society. (3)

Nature of personal and corporate responsibility from perspective of global system in which we all live.

684. Managing Mergers and Acquisitions. (1.5)

Exploring the motives, organizational processes, financial structures, and performance outcomes of mergers, acquisitions, and divestitures.

686. Real Estate Management. (3)

Applying principles and techniques of property investments, including determining value, financing arrangements, and marketing and management problems.

690R. Management Field Study. (1–3)

Experience working with faculty and management in assisting businesses with specific projects.

693R. Readings and Conference. (1–3)

Subject to be arranged with instructor. Approval must be obtained from the MBA Office.

696R. Business Language 2. (1–3)
Prerequisite: MBA 596R.

Advanced course in business language focusing on expansion of business vocabulary.

Executive MBA Required Courses

500. Introduction to Management. (3)

Intensive introduction to management thought and practice.

501. Management Fundamentals 1. (9)

Major business concepts and tools of finance, organizational behavior, marketing, operations, information systems, communications, micro- and macroeconomics.

502. Management Fundamentals 2. (9) Continuation of Management Fundamentals 1.

503. Management Integration. (7)

Taught concurrently with the two Management Fundamentals courses. Relates functional concepts to each other and the business environment.

600. Management Practicum. (3)

Second year "residency" week that includes business visits, business simulation, and in-depth case study/evaluation.

606. Business Negotiations. (2)

Functions of negotiation in professional and personal lives. Skills and patterns of professional negotiations, clients' perspective, etc.

609. Quantitative Methods. (2)

Review of basic statistics for common problems in business management and finance.

680. Business Policy. (3)

Top-management approach to problems of determining corporate strategy.

687. Global Management 1. (2.5)

Why companies get involved in international business; different entry strategies companies use. Focus on country analysis.

689. Global Management 2. (2)

Capstone course on global management focusing on financial analysis, marketing analysis, organizational strategy, and human resource management.

692. Foreign Business Excursion. (6)

International experience, including instruction by global business executives. Exposure to global practice in management, finance, operations, marketing, and strategy.

693R. Selected Topics in Management. (0.5–6)

Subject(s) to be determined by instructor.

Executive MBA Electives

602. Marketing Strategy. (2)

Advanced course in marketing providing additional theoretical and practical applications.

612. Managing Information Technology. (2)

Impact of information technology, trends in business, the strategic role, and managing the development of information technology.

615. Entrepreneurial Perspective. (2)

Developing the awareness of and ability to apply entrepreneurial knowledge to make better decisions when starting, growing, and harvesting business ventures.

621. Money, Financial Institutions, and Economic Activity. (2)

Economic analysis of effects of money, banking, and financial institutions on business decisions and aggregate economic activity.

623. Financial Strategy. (2)

Advanced course in finance providing additional theoretical and practical applications.

625. Strategic Issues in Manufacturing. (2)

Competitive approach to the manufacturing function.

630. Personal Finance/Risk Management. (2)

Financial decision making by the household, including how business interests and risk affect personal finances.

631. Investments. (2)

Review of modern investment theory. Practical study of principles and techniques of investment analysis, portfolio selection, and management.

632. Corporate Entrepreneurship/Innovation. (2)

Fostering innovation and change within existing corporations, including challenge of motivating workers to deal with changing environments.

634. Operations Strategy. (2)

Advanced course in operations providing additional theoretical and practical applications.

635. Introduction to Business Negotiation. (2)

Principles and processes of conducting negotiations in business.

651. Strategic Marketing Planning. (2)

Strategic market analysis and development and implementation of strategic marketing plan for a new product, new business, or ongoing operation.

655. Manager's Tool Kit. (2)

Developing computer-augmented practical skills available to today's managers. Modules include modeling, simulation, optimization, survey, statistics, forecasting, econometrics, and graphic presentation.

662. Product Management Tool Kit. (2)

Developing and managing consumer and international products: product selection, line planning, brand management, packaging, market testing, government regulations, market launch, and competitive strategy.

665. Building Competitive Advantage Through People. (2)

Staffing and training for competitive advantage in the global business environment. The fit between strategy, structure, and human resource practices.

669. Advanced Seminar in Managing Service Quality. (2)

Managing service quality in the firm. Paradigm shift from command-and-control models to importance of climate and culture.

686. Real Estate Management. (2)

Applying principles and techniques of property investments: determining value, arranging financing, and solving marketing and management problems.

690. Management Practicum. (3)

Applying management concepts by working in groups on multi-disciplinary projects with their own companies.

693R. Selected Topics in Management. (0.5–6)

Subject(s) to be determined by instructor.

FACULTY

Faculty in the Marriott School teaching in the business program:

ADOLPHSON, DONALD L., *Professor.* PhD, University of Wisconsin, Madison, 1968, 1973. Business Strategy.

BRYSON, PHILLIP J., *Professor.* PhD, Ohio State University, 1967. Finance.

CHERRINGTON, DAVID J., *Professor.* DBA, Indiana University, Bloomington, 1970. Personal Management.

CHRISTENSEN, THEODORE E., *Assistant Professor.* PhD, University of Georgia, 1995. Financial; Capital Markets; Taxation.

CLARKE, DARRAL G., *Professor.* PhD, Purdue University, 1972. Strategy Paradigms; Market Analysis and Decision Making; Planning for Small Businesses.

COTTRELL, DAVID M., *Associate Professor.* PhD, Ohio State University, 1992. Managerial; Audit; Financial Accounting; Fraud; Auditing.

DEAN, DOUGLAS L. *Assistant Professor.* PhD, University of Arizona, 1995. Information Systems.

DERR, C. BROOKLYN, *Professor.* EdD, Harvard University, 1971. International Human Resource; Career Dynamics.

DETIENNE, KRISTEN B., *Professor.* PhD, University of Southern California, 1991. Organizational Communications.

DISHMAN, PAUL L., *Associate Professor.* PhD, University of North Texas, 1992. Competitive Intelligence; Marketing; Marketing Strategy.

DYER, JEFFREY H., *Assistant Professor.* PhD, University of California, Los Angeles, 1993. Organizational Leadership and Strategy.

FAWCETT, STANLEY E., *Professor.* PhD, Arizona State University, 1999. International; Operations.

GARDNER, TIMOTHY M., *Assistant Professor.* PhD, Cornell University, 2002. Organizational Leadership and Strategy.

GIAUQUE, WILLIAM C., *Professor.* DBA, Harvard University, 1972. Quantitative Business Analysis.

GODFREY, PAUL C., *Associate Professor.* PhD, University of Washington, 1994. Strategic Development; Philosophy of Science and Management; Organizational Theory.

GREGENSEN, HAL B., *Professor.* PhD, University of California, Irvine, 1989. Organizational Change.

GUERTZ, MICHAEL D., *Professor.* PhD, University of Oregon, 1972. Marketing; Forecasting; Marketing Research.

HANSEN, MARK H., *Assistant Professor.* Texas A&M, 1996. Strategic Alliances; Trust and Cooperation; Strategy and Entrepreneurship Issues.

HANSON, KAYE T., *Assistant Professor.* PhD, Brigham Young University, 1983. Oral Communication.

HATCH, NILE S., *Assistant Professor.* PhD, University of California, Berkeley, 1995. Organizational Leadership and Strategy.

HEATON, HAL B., *Professor.* PhD, Stanford University, 1983. Finance.

HILL, NED C., *Professor.* PhD, Cornell University, 1976. Finance.

HOLMES, ANDREW, *Associate Professor.* PhD, University of Houston, 1992. Finance.

HUNT, H. KEITH, *Professor.* PhD, Northwestern University, 1972. Marketing.

JACKSON, W. BURKE, *Associate Professor.* PhD, Stanford University, 1978. Manufacturing Strategy; Production and Operation Management; Business Strategy and Business Policy.

KIRKHAM, KATE L., *Associate Professor.* PhD, Union Graduate School, 1977. Organizational Development.

LEBARON, CURTIS D., *Assistant Professor.* PhD, University of Texas, Austin, 1998. Communication.

MCQUEEN, GRANT R., *Professor.* PhD, University of Washington, 1989. Finance.

MEEK, CHRISTOPHER B., *Associate Professor.* PhD, Cornell University, 1983. International Development; Cross-Cultural Analysis in Organizational Behavior; Labor-Management Cooperation.

MERRILL, CRAIG, *Associate Professor.* PhD, University of Pennsylvania, 1994. Finance; Insurance.

NELSON, RAY D., *Associate Professor.* PhD, University of California, Berkeley, 1975. Managerial Economics.

PINEGAR, J. MICHAEL, *Professor.* PhD, University of Utah, 1982. Finance.

PRAWITT, DOUGLAS F., *Associate Professor.* PhD, University of Arizona, 1993. Accountancy and Information Systems.

RADEBAUGH, LEE H., *Professor.* DBA, Indiana University, Bloomington, 1973. International; Accounting.

RHOADS, GARY K., *Professor.* PhD, Texas Tech University, 1988. Marketing.

SAMPSON, SCOTT E., *Associate Professor.* PhD, University of Virginia, 1993. Operations.

SANDERS, W. GERARD, *Assistant Professor.* PhD, University of Texas, Austin, 1996. Corporate Governance, Mergers and Acquisitions, Executive Compensation.

SAWAYA, WILLIAM J., JR., *Associate Professor.* PhD, Arizona State University, 1971. Operations Management.

SEAWRIGHT, KRISTIE W., *Associate Professor.* PhD, University of Utah, 1993. Operations.

- SLADE, BARRETT A., *Assistant Professor*. PhD, University of Georgia, 1997. Real Estate Indexes.
- SMITH, SCOTT M., *Professor*. PhD, Pennsylvania State University, 1979. Marketing.
- STICE, EARL KAY, *Professor*. PhD, Cornell University, 1988. Financial Accounting.
- STICE, JAMES D., *Professor*. PhD, University of Washington, 1988. Financial Accounting.
- STOCKS, KEVIN D., *Professor*. PhD, Oklahoma State University, 1981. Managerial; Information Systems.
- SUDWEEKS, BRYAN L., *Associate Professor*. PhD, George Washington University, 1987. International Finance, Investments, and merging Markets.
- SWENSON, MICHAEL J., *Professor*. PhD, University of Oregon, 1980. Marketing.
- THOMPSON, JEFFERY A., *Professor*. PhD, University of Minnesota, 1999. Public Management.
- THOMPSON, MICHAEL P., *Associate Professor*. PhD, Rensselaer Polytechnic Institute, 1985. Communication; Organizational Theory.
- THORLEY, STEVEN R., *Professor*. PhD, University of Washington, 1991. Finance.
- WHETTEN, DAVID A., *Professor*. PhD, Cornell University, 1974. Organizational Theory; Organizational Identity.
- WHITLARK, DAVID B., *Professor*. PhD, University of Virginia, 1990. Marketing.
- WILLIAMS, GARY P., *Associate Professor*. MBA, Arizona State University, 1974. eBusiness; Entrepreneurship.
- WOODWORTH, WARNER P., *Professor*. PhD, University of Michigan, 1974. Industrial Democracy; Worker Ownership; International Development.
- WORSHAM, RONALD G., *Associate Professor*. PhD, University of Florida, 1994. Tax.

CHEMICAL ENGINEERING

Chair: W. Vincent Wilding
Graduate Coordinator: William G. Pitt

350 CB
 Provo, UT 84602-4100
 (801) 422-2586

THE PROGRAM OF STUDIES

The Department of Chemical Engineering at BYU is housed in the five-story Clyde Building, a multi-million dollar, 176,000-square-foot engineering center of classrooms, office space, and laboratories. State-of-the-art equipment, modern labs, and many support facilities help achieve the growing recognition the department receives from around the country. The department prides itself on the level and quality of cutting-edge research with which its faculty members are involved. Funding for departmental research is over \$2 million per year, with faculty and graduate students publishing results of technically innovative and scientific research in a multitude of reviewed journal articles and books each year. This department is the home of an NSF Engineering Research Center focusing on the area of combustion. There are also strong research programs in catalysis, thermodynamics, and bioengineering.

The Department of Chemical Engineering offers two degrees: Chemical Engineering—MS and Chemical Engineering—PhD. The department also offers an integrated master's program.

The department has approximately forty graduate students. The typical length of study in the department is two years for an MS degree and four and a half years for a PhD degree.

Chemical Engineering—MS

An MS in chemical engineering prepares the student for a wide variety of employment experiences in industry, all the way from plant operation to plant design. Employment oppor-

tunities in research may also be available to qualified MS graduates. Usually employment is readily available, and starting salaries are slightly higher than for BS graduates. The MS degree is designed to give the student a solid foundation in chemical engineering principles and a strong research experience. For students desiring design experience rather than research experience, the MS degree with design emphasis is available. See the Chemical Engineering Graduate Student Handbook for details.

Admission and Entry.

Admittance to the graduate program in chemical engineering is extended to students most likely to derive the greatest benefit from attending BYU. All candidates must meet admission standards set by the Office of Graduate Studies. Additionally, candidates for the chemical engineering graduate program must have an undergraduate degree in chemical engineering or a related field at the time of their admittance and must take the GRE exam. Additional factors considered in admitting students include:

- Academic aptitude as indicated by previous grades and degrees, GRE or other national/international test scores, recommendations, etc.
- Research aptitude as indicated by letters of reference, prior research experience, demonstrated communication skills, and capacity for critical analysis and creative work
- Demands on department resources as determined by outside fellowships, communication skills, intended research area, statement of research purpose, and tuition/stipend requirements

No one of these factors either assures or precludes admittance to the program. All motivated and qualified students are encouraged to apply.

- Semesters of entry and application deadlines for U.S. and Canadian students seeking financial aid and for international students: fall, February 15; winter, June 15; spring, October 15. For U.S. or Canadian students not seeking

financial aid, later deadlines apply, but the applicant should contact the department as soon as possible. For applicants with a BS in a major other than chemical engineering, application for spring term is recommended.

- Prerequisite: BS degree (or equivalent) in chemical engineering from a school accredited by the Accreditation Board for Engineering and Technology (ABET), with a minimum 3.0 GPA in upper-division chemical engineering courses and a minimum 3.3 GPA in all courses. A BS degree in other engineering fields, chemistry, physics, materials science, or metallurgy requires provisional admission.

Requirements for Degree.

- Credit hours: minimum 30 hours including 6 thesis hours (ChEn 699R). No more than 9 hours of 300–499 level course work will apply toward the master's degree.
- Required courses: ChEn 501, 531, 533, 535, 691R (every semester) and electives (13–15 hours). For requirements of special programs, see the Chemical Engineering Graduate Student Handbook.
- Residency requirement: residency is required for the major part of the work toward the master of science thesis. This work must be completed under the specific direction of a graduate faculty member while the student is in residence at BYU (at least two consecutive full-time semesters). "In residence" is defined as (1) being registered for credit as a graduate student and (2) living and conducting research in the general vicinity of the university, where the student has ready access to research facilities and consultation with the faculty. Further, all work applying toward any master's project or thesis must be completely open for university review and publication. Any exceptions to the above must be supported by written approval from the department and college and obtained in advance of any work being performed.

- Prospectus: each student must submit a written prospectus on his or her proposed thesis topic during the first year of study.
- Thesis.
- Examinations: a comprehensive qualifying examination on graduate engineering course work must be taken and passed, generally at the middle of the second semester of the graduate program (see the Chemical Engineering Graduate Student Handbook). The examination is offered once a year.
- Oral defense of thesis.
- Cumulative GPA: 3.0 or above in all MS degree classes.

Engineering Management—Minor

Offered to MS students in the College of Engineering and Technology, the engineering management minor provides a way to include some elements of modern management in a technical graduate program.

Requirements.

- The minor requires 9 hours. Mgt 501 and 511 are required courses. The other 3 hours are selected from Mgt 541, MBA 679 and 650, MPA 615, 622, 675, 676, OrgB 610, or approved Marriott School courses. Students should carefully plan how they will meet the requirements of the minor since these courses are taught only once a year.
- This minor should be declared as part of a student's graduate study list. Admittance approval to enroll in class will be derived from approved graduate study lists.

Chemical Engineering—PhD

A PhD in chemical engineering indicates that the graduate is capable of and qualified to conduct independent and original research in the chemical industries and other related fields. Employees with PhD degrees are in high demand by industry, with starting salaries that are considerably higher than for BS or MS graduates. Also, a PhD degree is generally required to pursue an academic career. The doctoral program

is designed to prepare the student for a lifetime of intellectual inquiry and research and is therefore more rigorous and demanding than the MS program. Students who are dedicated, diligent, and thoughtful and who can work independently are most suited for a PhD in chemical engineering at BYU.

Admission and Entry.

Admittance to the graduate program in chemical engineering is extended to students most likely to derive the greatest benefit from attending BYU. All candidates must meet admission standards set by the Office of Graduate Studies. Additionally, candidates for the chemical engineering graduate program must have an undergraduate degree in chemical engineering or a related field at the time of their admittance and must take the GRE exam. Additional factors considered in admitting students include:

- Academic aptitude as indicated by previous grades and degrees, GRE or other national/international test scores, recommendations, etc.
- Research aptitude as indicated by letters of reference, prior research experience, demonstrated communication skills, and capacity for critical analysis and creative work
- Demands on department resources as determined by outside fellowships, communication skills, intended research area, statement of research purpose, and tuition/stipend requirements

No one of these factors either assures or precludes admittance to the program. All motivated and qualified students are encouraged to apply.

- Semesters of entry and application deadlines for U.S. and Canadian students seeking financial aid and for international students: fall, February 15; winter, June 15; spring, October 15. For U.S. or Canadian students not seeking financial aid, later deadlines apply, but the applicant should contact the department as soon as possible. For applicants with a BS in a major other than chemical

engineering, application for spring term is recommended.

- Prerequisite: BS degree (or equivalent) in chemical engineering from a program accredited by the Accreditation Board for Engineering and Technology (ABET), with a minimum 3.0 GPA in upper-division chemical engineering courses and a minimum 3.3 GPA in all courses.

Requirements for Degree.

- Credit hours: minimum 54 semester hours, at least 36 of which must be course work beyond the baccalaureate degree, plus 18 hours of dissertation (ChEn 799R).

Candidates without a master's degree: 36 hours. At least 6 hours of the 36 must be in advanced mathematics, statistics, or computer science and a minimum 18 hours of dissertation (ChEn 799R).

Candidates with a master's degree: with committee approval, up to 20 hours of previous graduate work, may apply toward the doctorate, but at least 36 hours must be taken at BYU (including 18 dissertation hours). Courses taken in the master's program may apply toward the required 6 hours of advanced mathematics, statistics, or computer science.

- Required courses: ChEn 501, 531, 533, 535, 791R (every semester), 6 hours of advanced mathematics, statistics, or computer science, and 17 hours of elective courses.
- Undergraduate hours: up to 6 hours of 300- and 400-level interdisciplinary courses from an approved list may be applied toward the 36 hours of course work for interdisciplinary research areas, such as biomedicine and statistical mechanics. These approved courses appear in the Chemical Engineering Graduate Handbook.
- Study list: the graduate study list must be submitted during the first semester of doctoral study.
- Residency: see residence requirements listed in the preceding Chemical Engineering—MS section.
- Comprehensive qualifying examination: during the second semester

students must take and pass a written comprehensive qualifying examination based on graduate course work. The results of this examination are considered together with other performance criteria in evaluating the student for admission to candidacy.

- Prospectus: each student must submit and successfully defend a written prospectus on his or her proposed dissertation research topic during the second year of study. The quality of the prospectus is considered together with other performance criteria in evaluating the students for admission to candidacy.
- Dissertation.
- Oral defense of dissertation.
- Cumulative GPA: 3.0 or above in all PhD courses.

Integrated Master's Program—BS/MS

Students who desire to obtain a master's degree in engineering, and who have been accepted to a department professional program, may elect to enter the integrated master's program at the end of the sophomore year or during the junior year of the engineering curriculum. The purpose of the program is to afford greater flexibility in scheduling course work than is normally available through a traditional BS degree followed by an MS degree program.

In this program the BS degree may be received before or simultaneously with the MS degree (normally five years from freshman matriculation). Specific requirements are the same as those listed for the chemical engineering MS but include the following:

Admission and Entry.

Application requirements: formal application for admission submitted to the Office of Graduate Studies (B-356 ASB) before completion of final 34 hours of combined graduate and undergraduate course work.

Applicants must have a cumulative 3.3 or higher GPA and a 3.0 GPA in all chemical engineering classes.

Requirements for Degree.

- Maintenance requirements: cumulative 3.0 GPA or above in upper-division and graduate chemical engineering courses and satisfactory performance evaluation by the research advisor.
- Degree requirements: same as MS degree including a cumulative 3.0 GPA or above in all master's degree courses and, during first semester of registration as a graduate student, submission of a final study list that specifies all technical elective courses.

FINANCIAL ASSISTANCE

Support is available to chemical engineering students from the Key Industries Program, the university, faculty research contracts, and many scholarships, fellowships, and research and teaching assistantships.

RESOURCES AND OPPORTUNITIES

All of the faculty actively participate in research endeavors, and a number have gained international recognition for their work. Faculty research is particularly strong in the following areas: biomedical engineering; chemical propulsion; coal combustion and gasification; computer simulation; thermodynamics; kinetics and catalysis; materials; process design and control; statistical mechanics; transport phenomena.

Some of the major facilities in the Department of Chemical Engineering are:

The Advanced Combustion Engineering Research Center

(ACERC) is nationally recognized as a leading center for interdisciplinary combustion research. Founded by the National Science Foundation (NSF) as an engineering research center, ACERC has secured significant additional financial support from U.S. corporations. Students and faculty associated with the center pursue experimentation, analysis, computer modeling, and design of combustion systems.

DIPPR Thermophysical Properties Laboratory. Development and management of the DIPPR 801 thermophysical property database is the major pursuit of the DIPPR laboratory. This database, perhaps the best in the world of its kind, is sponsored by the Design Institute for Physical Property Data (DIPPR) of the American Institute of Chemical Engineers (AIChE). Research activities consist of collecting and evaluating literature data on pure component properties and developing correlation and prediction techniques. Experimental projects also compose a significant emphasis of the laboratory.

Catalysis Laboratory. The lab has a fourteen-year history of productive research in heterogeneous catalysis. Highly interdisciplinary in nature, this research applies principles of kinetics, chemistry, materials science, surface science, and chemical engineering to the understanding of catalyst properties and catalytic reactions.

For a more detailed description of the graduate program requirements, send for a copy of the Chemical Engineering Graduate Student Handbook (or look at <http://www.et.byu.edu/cheme/graduate>).

COURSE DESCRIPTIONS

500. Creative Skills in Chemical Engineering. (1)

Application of creativity and technical knowledge from prior course work to solution of relevant, open-ended problems.

501. Directed Graduate Studies. (2)

Guided preparation for department's comprehensive exams and for formulation of research prospectus.

510. Principles of Reservoir Engineering. (3)

Prerequisite: ChEn 373.

Reservoir and hydrocarbon classification; fluid flow; primary oil and gas recovery mechanisms; enhanced oil recovery.

511. Environmental Engineering for Chemical Engineers. (3)

Prerequisite: ChEn 273 or equivalent.

Overview of environmental engineering for chemical engineers. Topics include environmental legislation, toxicology, process design for pollution prevention/waste minimization, hazardous waste treatment and disposal, and remediation.

518. Biomedical Engineering Principles. (3)

Prerequisite: ChEn 376, Math 213.

Application of chemical engineering principles to model physiologic systems and to solve medical problems.

528. Industrial Catalytic Processes. (2)

Prerequisite: Chem 106 or 111; Chem 351; ChEn 378; or equivalents.

Recommended: ChEn 478.

Fundamentals of catalytic chemistry and materials; applications to important industrial catalytic processes. Includes catalyst materials and preparation, catalyst characterization, fixed-bed reactor design, and catalyst deactivation.

531. Thermodynamics of Multicomponent Systems. (3)

Prerequisite: ChEn 373 or Chem 461 or equivalent.

Fundamental concepts and applications in first and second laws, equilibrium and stability, phase equilibrium, and homogeneous and heterogeneous chemical equilibrium.

533. Transport Phenomena. (3)

Prerequisite: ChEn 476 or concurrent registration. Recommended: Math 323.

Transport mechanisms and coefficients and fundamental field equations for momentum, heat, and mass transport, with application to system design.

534. Advanced Separations. (3)

Prerequisite: ChEn 533; Math 334 or equivalent.

General theory of differential and stagewise diffusional and separation operations, multicomponent distillation, extraction, and absorption; application of this theory to solution of complex problems, including column design and instrumentation.

535. Kinetics and Catalysis. (3)

Prerequisite: ChEn 478.

Theories and principles of chemical kinetics, including heterogeneous catalysis and reactor design.

541. Computer Design Methods. (3)

Prerequisite: Math 311, ChEn 376 or equivalents.

Computer-aided design and numerical methods of chemical engineering processes.

578. Polymer Science and Engineering. (3)

Prerequisite: introductory materials engineering course.

Fundamentals of polymer chemistry and physics and their implications in engineering applications. Topics include polymerization chemistry, structure-property relationships, polymer physics, and transport properties.

593R. Special Topics—Intermediate. (1–3)

Prerequisite: instructor's consent.

Special topics for advanced undergraduate students and for graduate students.

631. Applied Statistical Mechanics. (3)

Prerequisite: Chem 461; ChEn 531 or equivalent.

Fundamentals of statistical mechanics and their application to calculating thermodynamic and transport properties of fluids and fluid mixtures.

633. Combustion Processes. (3)

Prerequisite: ChEn 533 or equivalent.

Fundamentals of transport processes in reacting flow systems with specific applications of various combustion processes.

641. Combustion Modeling. (3)

Prerequisite: ChEn 633; Math 311 or ChEn 541.

Theory of combustion systems and quantitative procedures for computing performance of combustion chambers. Applications include turbulent combustion of gases, sprays, and particulates.

674. Advanced Thermodynamics. (2)
Prerequisite: ChEn 531 or equivalent.

Advanced topics in thermodynamics, including electrolytes, phase equilibrium modeling, nonequilibrium thermodynamics, and calorimetry.

685. Chemical Engineering for Chemistry Students. (6)

Intensive treatment of fundamentals of material and energy balances, fluid flow, and heat and mass transfer, with application to design and analysis of engineering systems.

691R. Seminar for Master's Students. (0.5)

Technical presentations by graduate students, faculty members, and guests.

693R. Special Topics—Graduate. (1–6)

698R. Master's Project. (1–6)

699R. Master's Thesis. (1–6)

733. Coal Combustion. (3)

Prerequisite: instructor's consent.

Fundamentals of coal combustion and gasification processes, including particle mechanics, devolatilization, heterogeneous oxidation, radiative heat transfer, and combustion of coal in practical flames.

791R. Seminar for Doctoral Students. (0.5)

793R. Selected Topics in Chemical Engineering. (1–3)

Topics vary according to student-faculty research interests.

799R. Doctoral Dissertation. (1–9)

FACULTY

BARTHOLOMEW, CALVIN H., *Professor.* PhD, Stanford University, 1972.
Catalysis.

BAXTER, LARRY L., *Professor.* PhD, Brigham Young University, 1989.
Combustion of Coal, Biomass, and Solid Fuels.

BECKSTEAD, MERRILL W., *Professor.* PhD, University of Utah, 1965.
Combustion of Solid Propellants.

FLETCHER, THOMAS H., *Professor.* PhD, Brigham Young University, 1983. Coal Combustion, Gasification, Gas Turbine Combustion.

HARB, JOHN N., *Professor.* PhD, University of Illinois, 1988.
Electrochemical Engineering.

HECKER, WILLIAM C., *Associate Professor.* PhD, University of California, Berkeley, 1982.
Catalysis; Chemical Kinetics.

OSCARSON, JOHN L., *Professor.* PhD, University of Michigan, 1985.
Thermodynamics; Calorimetry.

PITT, WILLIAM G., *Professor.* PhD, University of Wisconsin, Madison, 1987. Ultrasonic Delivery of Pharmaceuticals; Biomedical Polymers.

ROWLEY, RICHARD L., *Professor.* PhD, Michigan State University, 1978.
Liquid-Mixture Transport Properties; Thermodynamics.

SOLE, KENNETH A., *Professor.* PhD, University of Wisconsin, Madison, 1974. Blood-Material Interactions; Blood Filtration.

TERRY, RONALD E., *Professor.* PhD, Brigham Young University, 1976.
Enhanced Oil Recovery; Thermodynamics.

WHEELER, DEAN R., *Assistant Professor.* PhD, University of California, Berkeley, 2002.
Electrochemistry; Thermodynamics.

WILDING, W. VINCENT, *Professor.* PhD, Rice University, 1985.
Applied Thermodynamics.

CHEMISTRY AND BIOCHEMISTRY

Chair: Francis R. Nordmeyer
Graduate Coordinator: Noel L. Owen

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THE PROGRAM OF STUDIES

Chemistry is fundamental in our physical and biological world. The principles and applications of chemistry are diverse, interesting, and challenging. The graduate program in chemistry and biochemistry at BYU prepares developing scientists to enjoy the excitement of chemistry and to contribute in diverse circumstances where chemical knowledge and skill are needed.

Thirty-five faculty are the foundation of an excellent graduate program. The department occupies the 190,000-square-foot Benson Science Building, which provides comfortable, modern laboratories. Extensive instrumentation is available and constantly being replaced or upgraded to support cutting-edge research.

About 70–80 graduate students provide an essential and dynamic atmosphere for research progress and stimulating discussion. Twenty postdoctoral students and visiting scientists add depth and diversity to the intellectual atmosphere. About 170 undergraduate research assistants also bring significant strength and enthusiasm to research projects.

Additional information about faculty members and their research interests are found in a color brochure available from the department office at the address, phone number, fax, or e-mail address given above.

The Department of Chemistry and Biochemistry offers four degrees: Chemistry—MS, Biochemistry—MS,

Chemistry—PhD, and Biochemistry—PhD.

Areas of emphasis include: Analytical Chemistry, Biochemistry, Inorganic/Materials Chemistry, Organic Chemistry, and Physical Chemistry.

About 80 percent of the graduate students are in the PhD program, and they complete their work in four to five years. MS program students complete their work in about two and a half years.

Admission and Entry.

- Application requirements: (1) completed BYU Application for Admission to Graduate Study, (2) official results of the GRE general exam, (3) official TOEFL examination results for persons whose first language is not English.

Note: The GRE subject test for chemistry or biochemistry is recommended but not required.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international); winter, August 15 (U.S. only).
- Prerequisite requirements: applicants should have completed a baccalaureate degree in chemistry or biochemistry or have equivalent preparation in chemistry and biochemistry.
- Entrance examinations: written examinations of a new student's undergraduate preparation in chemistry and/or biochemistry are given during the week preceding the first semester of enrollment.

Chemistry—MS

The chemistry MS degree provides specialized study and research on an advanced level. It includes about one year of course work beyond the bachelor's degree and the development of a significant research project presented in a thesis. The MS student will study in one of the four chemistry areas of emphasis or develop, with an advisor, an interdisciplinary program. The added preparation in theory and practice allows the chemical scientist to assume responsibility and supervision beyond that normally

given with bachelor's level study. The MS degree is adequate preparation for some junior college teaching positions. The master's degree is generally not necessary as a preparatory step for the PhD degree.

Requirements for Degree.

- Credit hours (30): 24 hours of course work and research plus 6 thesis hours (Chem 699R).
- Required courses: Chem 594R (every semester in residence) and other courses as specified by committee.
- Annual progress review and/or examination.
- Thesis.
- Final oral examination consisting of two parts: (A) public presentation of original research described in thesis; (B) comprehensive examination on course work, research, and thesis.

Biochemistry—MS

The biochemistry MS degree provides specialized study on an advanced level. The degree includes about one year of course work beyond the BS degree and a thesis based upon a significant research project. The research will be in areas of biochemical emphasis, such as molecular genetics, enzymology, or protein structure and function. The added preparation in theory and practice allows the MS biochemist to assume responsibility and supervision beyond that normally given a BS or BA biochemist. The MS degree is adequate preparation for some junior college teaching positions. It is generally not a prerequisite for a PhD degree program.

Requirements for Degree.

- Credit hours (30): 24 hours of course work and research plus 6 thesis hours (Chem 699R).
- Required courses: Chem 581, 583, 594R (every semester in residence), and other courses as specified by committee.
- Annual progress review and/or examination.
- Thesis.
- Final oral examination consisting of two parts: (A) public presenta-

tion of original research described in thesis; (B) comprehensive examination on course work, research, and thesis.

Chemistry—PhD

The chemistry PhD degree prepares a scientist to contribute on the creative front of chemical science. A student's study may fall within one of the chemistry areas of emphasis or it may involve an interdisciplinary focus. Some courses on advanced topics related to the student's professional goals will be taken, but the PhD degree is primarily a research experience that is to be reported in a dissertation and in the scientific literature. The PhD chemist is prepared for a wide range of career choices and will be expected to act with considerable independence and enjoy major responsibilities. A new PhD chemist may seek employment in industry, government agencies, or the university or college setting.

Requirements for Degree.

- Credit hours (54): 36 hours of course work and research plus 18 dissertation hours (Chem 799R). (With departmental approval, some credit from an MS degree may be applied toward this requirement.)
- Required courses: Chem 594R (every semester in residence) and other courses as specified by committee.
- Annual progress review and/or examination.
- Comprehensive qualifying exam: written and/or oral.
- Dissertation.
- Final oral examination consisting of two parts: (A) public presentation of original research described in dissertation; (B) oral examination, primarily on dissertation.

Biochemistry—PhD

The biochemistry PhD degree prepares a scientist to perform and to supervise creative research in biochemistry and molecular biology. The PhD degree requires some course work, but the emphasis is primarily on original, creative research leading to a dissertation and to

publications in scientific journals. The PhD biochemist is prepared for a wide range of career opportunities that involve independent thinking and supervisory responsibilities in industry, government, or academia.

Requirements for Degree.

- Credit hours (54): 36 hours of course work and research plus 18 dissertation hours (Chem 799R). (With departmental approval, some credit from an MS degree may be applied toward this requirement.)
- Required courses: Chem 581, 583, 594R, (every semester in residence), and other courses as specified by committee.
- Annual progress review and/or examination.
- Comprehensive qualifying exam: written and/or oral.
- Dissertation.
- Final oral examination consisting of two parts: (A) public presentation of original research described in dissertation; (B) oral examination, primarily on dissertation.

FINANCIAL ASSISTANCE

All eligible students in the department's graduate program who request financial aid are granted tuition for all required graduate courses and a graduate assistantship. These awards are granted on a continuing basis as long as satisfactory progress is being made toward the degree. This financial assistance allows students to be involved full-time in their graduate program, which will include research and course work and may also include teaching and laboratory assistant assignments.

Other types of financial aid such as internships, scholarships, and student loans may also be available to students who qualify. More information may be obtained from the department office and from the Financial Aid Office.

The department relies on its graduate students to fill many assignments in laboratory and recitation instruction. Unless excused by the faculty, a

graduate student is expected to be a teaching assistant for at least two semesters for twenty hours a week during residency toward the doctoral degree. Master's degree candidates are expected to teach half this amount.

RESOURCES AND OPPORTUNITIES

Cancer Research Center. The objective of the BYU Cancer Research Center is to make significant scientific contributions toward the control and cure of cancer. Intense investigations of oncogenes and their relation to the development of cancer represents a major activity within the center. Faculty and students from the Department of Chemistry and Biochemistry and from the College of Biology and Agriculture contribute their expertise.

Detailed information about the department, our facilities, and programs is available on the department's Web site at www.chem.byu.edu. We encourage you to explore the site and to contact the department office for answers to any questions that you may have. (Please see preceding address information.)

COURSE DESCRIPTIONS

501. Chemical Handling and Safe Laboratory Practices. (0.5)

Survey of appropriate methods to handle hazardous materials and dispose of waste. Legal rights and requirements. Safety in chemistry laboratory work.

514. Inorganic Chemistry. (3)

Prerequisite: Chem 461, 462; or 461, 468.

In-depth treatment of theoretical concepts in inorganic chemistry and the descriptive chemistry of some of the elements.

518. Advanced Inorganic Laboratory. (2)

Prerequisite: Chem 501 or concurrent enrollment; Chem 514.

Syntheses, characterization, and properties of materials; coordination and organometallic compounds.

521. Instrumental Analysis

Lecture. (2)

Prerequisite: Chem 464 or equivalent; Chem 501 or concurrent registration.

Modern instrumental methods and basic principles of instrumentation.

523. Instrumental Analysis

Laboratory. (2)

Prerequisite: Chem 464 or equivalent; Chem 501 or concurrent registration.

Continuation of Chem 521. Laboratory experience with modern analytical instrumentation.

552. Advanced Organic Chemistry. (3)

Prerequisite: Chem 351, 352; 461, 462.

Emphasizes physical aspects of organic chemistry; mechanisms, reaction intermediates, bonding, stereochemical and stereoelectronic effects, molecular orbital theory, Lewis acidity and basicity.

553. Advanced Organic Chemistry. (3)

Prerequisite: Chem 351, 352.

Synthetic aspects of organic chemistry; oxidations, reductions, concerted reactions, stereoselectivity, synthetic equivalents, protecting groups. Examples of natural product total synthesis.

561. Chemical Thermodynamics. (3)

Prerequisite: Chem 461, 462.

Development of the principles of chemical thermodynamics, including laws, pure materials, mixtures, equilibria, and elementary statistical mechanics.

563. Reaction Kinetics. (3)

Prerequisite: Chem 461, 462.

Theoretical aspects of chemical kinetics in the gas phase and in solution. Rates and mechanisms in solution, rapid reactions, and other topics.

564. Nuclear Chemistry and Radiochemistry. (2-3)

Prerequisite: Chem 461, 462.

Introduction to nuclear structure, radioactivity, nuclear spectroscopy, and nuclear reactions, emphasizing applications in chemistry.

565. Introduction to Quantum Chemistry. (3)

Prerequisite: Chem 461, 462.

Introduction to physical and mathematical aspects of quantum theory, emphasizing application of the Schrödinger wave equation to chemical systems.

569. Fundamentals of Spectroscopy. (3)

Prerequisite: Chem 461, 462; or 461, 468; 523 or equivalent).

Atomic and molecular spectroscopy and application of group theoretical concepts. Types of experiments and interpretation of data.

581. Advanced Biochemical Methodology 1. (3)

Prerequisite: Chem 482 or equivalent.

First of two required courses for biochemistry graduate students. Physical methods used in biochemical research, including centrifugation, structural determinations, and use of radioactivity and spectroscopy.

583. Advanced Biochemical Methodology 2. (3)

Prerequisite: Chem 482 or equivalent.

Second of two required courses for biochemistry graduate students. Molecular biological methods used in biochemistry, including immunotechniques, bioinformatics, and selected recombinant DNA techniques.

584. Biochemistry Laboratory/Proteins. (3)

Prerequisite: Chem 481 or equivalent.

Introduction to current biochemical research procedures including spectrophotometry, chromatography, electrophoresis, and immunological techniques. Protein over-expression; isolation and characterization methods. Enzyme kinetics and protein-ligand interactions. Introduction to bioinformatics.

586. Biochemistry Laboratory/Nucleic Acids. (3)

Prerequisite: Chem 482 or equivalent.

Laboratory course covering major techniques involved in isolation, amplification, and cloning of recombinant DNA as well as isolation, synthesis, translation, and identification of RNA.

594R. General Seminar. (0.5)

Research topics presented by faculty and visiting scientists. Required every semester in residence.

596R. Special Topics in Chemistry. (1-3)

Prerequisite: Chem 351, 352; 367 or 461.

Subjects that may be offered include:

- Atmospheric Chemistry
- Ion Chromatography
- Organic Spectroscopic Identification

619R. Advanced Topics in Inorganic Chemistry. (1-3)

Prerequisite: Chem 514 or equivalent.

- The following topics are rotated:
- Chemistry of the Main Group Elements.
 - Chemistry of the Transition Elements.

629R. Advanced Topics in Analytical Chemistry. (1-3)

Prerequisite: Chem 523 or equivalent.

- The following topics are rotated:
- Separation Methods of Analysis.
 - Spectroscopic Methods of Analysis.

659R. Advanced Topics in Organic Chemistry. (1-3)

Prerequisite: Chem 552 or equivalent.

- The following topics are rotated:
- Organic Heterocyclic Compounds.
 - Organometallic Chemistry.
 - Organic Photochemistry.

669R. Advanced Topics in Physical Chemistry. (2-3)

Prerequisite: Chem 561 and/or 565 or equivalent.

- The following topics are rotated:
- Advanced Chemical Thermodynamics.
 - Quantum Chemistry.

689R. Advanced Topics in Biochemistry. (1-3)

Prerequisite: Chem 582 or equivalent.

The following topics are rotated:

- Biochemistry of RNA
- Cellular Signal Transduction
- Clinical Chemistry
- Eukaryotic Gene Regulation

697R. Master's Candidate Research. (1-6)

Prerequisite: Chem 501 or concurrent registration.

699R. Master's Thesis. (1-9)**719R. Selected Topics in Inorganic Chemistry.** (1-3)

Subjects that may be offered include:

- Bioinorganic Chemistry
- Coordination Chemistry
- Environmental Chemistry

729R. Selected Topics in Analytical Chemistry. (1-3)

Subjects that may be offered include:

- Atomic Spectroscopy
- Chromatography
- Electrochemical Methods of Analysis
- Molecular Spectroscopy
- X-Ray Structure Analysis

759R. Selected Topics in Organic Chemistry. (1-3)

Subjects that may be offered include:

- Medicinal Chemistry
- Natural Products
- Nucleoside and Nucleotide Chemistry
- Stereoselective Synthesis

769R. Selected Topics in Physical Chemistry. (1-3)

Subjects that may be offered include:

- Advanced Group Theory
- Advanced Techniques in Magnetic Resonance
- Calorimetry
- Molecular Structure and Spectroscopy
- Solid-State Chemistry
- Statistical Mechanics

789R. Selected Topics in Biochemistry. (1–3)

Subjects that may be offered include:

- Biopolymer Conformational Analysis
- Metabolism
- Molecular Biology of Cancer
- Molecular Modeling of Biomolecules

797R. Doctoral Candidate Research. (1–9)

Prerequisite: Chem 501 or concurrent registration.

799R. Doctoral Dissertation. (1–9)

FACULTY

ANDRUS, MERRITT B., *Associate Professor.* PhD, University of Utah, 1991. Organic Chemistry.

ASPLUND, MATTHEW C., *Assistant Professor.* PhD, University of California, Berkeley, 1998. Physical Chemistry.

BOERIO-GOATES, JULIANA, *Professor.* PhD, University of Michigan, 1979. Physical Chemistry.

BURTON, GREGORY F., *Professor.* PhD, Medical College of Virginia, Virginia Commonwealth University, 1989. Biochemistry.

CASTLE, STEVEN L., *Assistant Professor.* PhD, Scripps Research Institute, 2000. Organic Chemistry.

DEARDEN, DAVID V., *Associate Professor.* PhD, California Institute of Technology, 1989. Analytical/Physical Chemistry.

EATOUGH, DELBERT J., *Professor.* PhD, Brigham Young University, 1967. Physical and Atmospheric Chemistry.

ELTON, TERRY S., *Professor.* PhD, Washington State University, 1986. Biochemistry.

FARNSWORTH, PAUL B., *Professor.* PhD, University of Wisconsin, Madison, 1981. Analytical Chemistry.

FLEMING, STEVEN A., *Professor.* PhD, University of Wisconsin, Madison, 1984. Organic Chemistry.

GOATES, STEVEN R., *Professor.* PhD, University of Michigan, 1981. Analytical Chemistry.

GRAVES, STEVEN W., *Associate Professor.* PhD, Yale University, 1978. Biochemistry.

HANSEN, LEE D., *Professor.* PhD, Brigham Young University, 1965. Inorganic/Materials Chemistry.

HARRISON, ROGER G., *Associate Professor.* PhD, University of Utah, 1993. Inorganic/Materials Chemistry.

KUCHAR, MARVIN C. J., *Associate Professor.* PhD, Brigham Young University, 1963. Organic Chemistry.

LAMB, JOHN D., *Professor.* PhD, Brigham Young University, 1978. Inorganic/Materials Chemistry.

LEE, MILTON L., *Professor.* PhD, Indiana University, 1975. Analytical Chemistry.

LINFORD, MATTHEW R., *Assistant Professor.* PhD, Stanford University, 1996. Analytical/Organic Chemistry.

NORDMEYER, FRANCIS R., *Professor.* PhD, Stanford University, 1967. Inorganic/Materials Chemistry.

OWEN, NOEL L., *Professor.* PhD, Cambridge University, 1964; DSc, University of Wales, 1983. Physical Chemistry.

PETERSON, MATT A., *Associate Professor.* PhD, University of Arizona, 1992. Organic Chemistry.

ROBINS, MORRIS J., *Professor.* PhD, Arizona State University, 1965. Organic Chemistry.

SAVAGE, PAUL B., *Associate Professor.* PhD, University of Wisconsin, 1993. Organic Chemistry.

SEVY, ERIC T., *Assistant Professor.* PhD, Columbia University, 1999. Physical Chemistry.

SHIRTS, RANDALL B., *Associate Professor.* PhD, Harvard University, 1979. Physical Chemistry.

SIMMONS, DANIEL L., *Professor.* PhD, University of Wisconsin, Madison, 1986. Biochemistry.

THULIN, CRAIG D., *Assistant Professor.* PhD, University of Washington, Seattle, 1995. Biochemistry.

VOLLMER-SNARR, HEIDI R., *Assistant Professor.* DPhil, Oxford University, United Kingdom, 2000. Organic Chemistry.

WATT, GERALD D., *Professor.* PhD, Brigham Young University, 1966. Biochemistry.

WILLARDSON, BARRY M., *Associate Professor.* PhD, Purdue University, 1990. Biochemistry.

WOODFIELD, BRIAN F., *Professor.* PhD, University of California, Berkeley, 1994. Physical Chemistry.

WOOLLEY, ADAM T., *Assistant Professor.* PhD, University of California, Berkeley, 1997. Analytical Chemistry.

WOOLLEY, EARL M., *Professor.* PhD, Brigham Young University, 1969. Analytical/Physical Chemistry.

ZIMMERMAN, S. SCOTT, *Professor.* PhD, Florida State University, 1973. Biochemistry.

CIVIL AND ENVIRONMENTAL ENGINEERING

Chair: A. Woodruff Miller
Associate Chair: Steven E. Benzley
Graduate Coordinator: E. James Nelson

368 CB
 Provo, UT 84602-4081
 (801) 422-2811

THE PROGRAM OF STUDIES

Two degrees are offered through the Department of Civil and Environmental Engineering: Civil Engineering—MS and Civil Engineering—PhD. The department also offers an integrated BS/MS program.

The Department of Civil and Environmental Engineering admits approximately seventy-five students each year into its programs.

Civil Engineering—MS

The MS degree is awarded to students who have mastered professional training in selected areas of civil and environmental engineering. Such training is gained through graduate course work which, unlike bachelor's course work, consists of elective courses and directed research or design.

Students pursuing the thesis option gain the added dimension of participating in research work (usually funded) at the cutting-edge of the profession. This research work culminates in a high-quality thesis presentation. Electronic submission of the thesis is strongly encouraged. Alternatively, the student may choose the project option and complete a less intensive research or design study. The degree normally requires one year beyond the bachelor's degree.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 15 (international) and May 15 (U.S.); win-

ter, June 15 (international) and September 15 (U.S.); spring, October 15 (international) and February 15 (U.S.); summer, December 15 (international) and March 15 (U.S.).

- Application requirements: there is no entrance examination for applicants who hold a BS from U.S. or Canadian schools. However, international students must submit scores for the GRE general test and TOEFL (575 minimum) or TOEFC (220 minimum). Prerequisite: baccalaureate degree in civil engineering or its equivalent. Students with other academic backgrounds will also be considered but would need to complete civil engineering prerequisite course work.

Requirements for Degree.

- Credit hours:
Thesis program: 30 minimum approved hours including 6 thesis hours (CEEn 699R).
Project program: 30 minimum approved hours including a maximum of 3 project hours (CEEn 698R).
- Required course: CEEEn 691R (Graduate Seminar) each fall and winter semester; no more than 1 hour can count toward the minimum hours required. Consult department for details.
- Study list: the graduate study list must be submitted during the first semester of graduate study.
- Residency requirements: residency is required for the major part of the work toward the master of science degree. This work must be completed under the specific direction of a graduate faculty member while the student is in residence at BYU. "In residence" is defined as (1) being registered for credit as a graduate student and (2) living and conducting research in the general vicinity of the university, where the student has ready access to research facilities and consultation with the faculty. Further, all work applying toward any master's thesis or project must be completely open for university review and publication. Any exceptions to the above must be supported by

written approval from the department and college and obtained in advance of any work being performed.

- Examinations: (A) successful completion of the fundamentals of engineering examination (FE); (B) oral defense of thesis or oral presentation of project.
- Cumulative 3.0 GPA or above in all master's degree courses.

Engineering Management—Minor

Offered to MS students in the College of Engineering and Technology, the engineering management minor provides a way to include some elements of modern management in a technical graduate program.

Requirements.

- The minor requires 9 hours. Mgt 501 and 511 are required courses. The other 3 hours are selected from Mgt 541, MBA 650 and 679, OrgB 699R, PMgt 615, 622, 675, 676, or approved Marriott School courses. Students should carefully plan how they will meet the requirements of the minor since these courses are taught only once a year.
- This minor should be declared as part of a student's graduate study list. Admittance approval to enroll in class will be derived from approved graduate study lists.

Civil Engineering—PhD

The PhD is awarded to candidates who have made a significant contribution to knowledge in a particular specialization of civil and environmental engineering. Such a contribution is achieved through research that involves a thorough review of applicable literature, completion of carefully planned work, and a high-quality presentation of the new knowledge: the dissertation. Electronic submission of the dissertation is strongly encouraged. Adequate course work is necessary to provide a foundation of expertise for quality research. The degree normally requires three years beyond

the bachelor's degree or two years beyond the master's degree.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 15 (international) and May 15 (U.S.); winter, June 15 (international) and September 15 (U.S.); spring, October 15 (international) and February 15 (U.S.); summer, December 15 (international) and March 15 (U.S.)
- Application requirements: there is no entrance examination for applicants who hold a BS or MS degree from U.S. or Canadian schools. However, international students must submit scores for the GRE general test and TOEFL (575 minimum) or TOEFC (220 minimum).
- Prerequisite: BS degree (or equivalent) in civil engineering from a program accredited by the Accreditation Board for Engineering and Technology (ABET) with a minimum 3.4 GPA in the last 60 hours of technical and scientific course work. A BS in any other field requires provisional admission. Consult the department for specific details.

Requirements for Degree.

- Credit hours: minimum 54 semester hours, at least 36 of which must be course work beyond the baccalaureate degree, plus a minimum 18 hours of dissertation (CEEn 799R).

Candidates without a master's degree: at least 54 semester hours with a minimum 36 hours in graduate-level courses, plus a minimum 18 hours of dissertation (CEEn 799R). Students with no advanced mathematics, statistics, or science in their baccalaureate degree will be required to take additional courses in these areas.

Candidates with a Master's Degree: at least 36 semester hours beyond master's degree hours with a minimum 18 hours in graduate-level courses, plus a minimum 18 hours of dissertation (CEEn 799R). Students with no advanced mathematics, statistics, or science in their baccalaureate or master's degree

will be required to take additional courses in these areas.

- Required course: CEEn 691R (graduate seminar) each fall and winter semester; no more than 2 hours can count toward minimum hours required.
- Study list: the graduate study list must be submitted during the first semester of doctoral study.
- Residency requirements: see residency requirements listed in the preceding Civil and Environmental Engineering—MS section.
- Comprehensive qualifying examination: students must take and pass a written comprehensive qualifying examination based on graduate course work. After passing this examination, the student is accepted to candidacy for the doctoral degree. The examination is offered twice a year and is generally taken at the end of the first two semesters of the graduate program.
- Prospectus: students must submit and successfully defend a written prospectus on their proposed dissertation research topic at least one year before completion of the degree.
- Dissertation.
- Oral defense of dissertation.

Integrated Master's Program—BS/MS

Students who desire to obtain a master's degree in engineering, and who have been accepted to the department professional program, may elect to apply for and enter the integrated master's program during the junior year of the engineering curriculum. The purpose of the program is to afford greater flexibility in scheduling course work than is normally available through a traditional BS degree followed by an MS degree program.

In this program the BS degree will be received simultaneously with the MS degree (normally five years from freshman matriculation). Specific requirements are the same as those listed for the civil and environmental engineering MS but include the following:

Admission and Entry.

- Submit formal integrated program application to the Department of Civil and Environmental Engineering during junior or senior year.
- Submit formal graduate program application for admission to the Office of Graduate Studies before beginning the final 30 hours of the graduate degree.
- Required GPA: cumulative of 2.5 or better in civil and environmental engineering courses at end of sophomore year.

Requirements for Degree.

- Submit final study list during first semester of registration as a graduate student.
- Cumulative 3.0 GPA or above in all master's degree courses.

FINANCIAL ASSISTANCE

Departmental Scholarships.

Master's or PhD candidates are eligible for scholarships each year. Applications may be obtained in March from the department office; the awards are given in mid-April for the next school year. Selection is based on need and on scholastic merit (primarily using the GPA of the last 60 hours on a verified transcript). These scholarships may be received in addition to any assistantships or privately endowed awards unless the total financial aid package exceeds the scholarship limit stipulated by the university.

Research Assistantships. Most of the faculty obtain funds from both off-campus and on-campus sources to support research assistants. These awards support students at the current pay rate for up to 20 hours per week. The research work normally applies toward completion of the student's thesis or dissertation.

Teaching Assistantships. All graduate students are eligible to be TAs. The assistantships are usually for 10 hours per week and consist of teaching labs and grading courses. Graduate applicants are given priority over undergraduates.

Privately Endowed Awards. The department awards the Caleb Tanner Water Resources Scholarship, the Rollins Geotechnical Scholarship, the John and Bobbie Tanner Scholarship, the Joseph Black Scholarship, the Russell Berrett Scholarship, and the T. Leslie Youd Family Scholarship. These are cash awards of \$2,000 to \$3,000 for one year. Applications are available in March.

Resources and Opportunities

The College of Engineering and Technology, of which the Department of Civil and Environmental Engineering is a part, has experienced rapid growth in funded research during the past decade. A national leader in several areas, the college's research organizations now have two centers: the Advanced Combustion Engineering Research Center (ACERC) and the Advanced Composites Manufacturing and Engineering Center (ACME). This includes one of the prestigious National Science Foundation engineering research centers, four research laboratories, and two state-funded Centers of Excellence. More than half the faculty participate in research endeavors, and a number have gained international recognition for their work. Listed below are the resources most pertinent to the Department of Civil and Environmental Engineering:

Environmental Modeling Research Laboratory (EMRL). This laboratory is organized within the Civil and Environmental Engineering Department. During the last few years, the emphasis of the laboratory has been on applications in geotechnical and hydrological engineering. There are over 3,000 users of the current software products located in 60 nations. Software development is funded from software license fees and direct participation by governmental agencies and private industry.

Center for Advanced Structural Composites (CASC). This center sponsors research in the Iso Truss—a novel, patented, three-dimensional, ultra-lightweight composite structur-

al shape. The Iso Truss takes advantage of the highly directional properties of composite materials that have high strength and stiffness to produce an extremely efficient, lightweight structure. The Iso Truss has numerous applications in the aerospace, automotive, civil, communication, manufacturing, marine, and sporting industries.

Numerous undergraduate and graduate student research and development projects are sponsored within EMRL and CASC.

For a more detailed description of the graduate program requirements, send for a copy of the department's graduate handbook.

COURSE DESCRIPTIONS

500. (CEEn-MeEn) Design and Materials Applications. (3)

Prerequisite: CEEEn 203; MeEn 372 or CEEEn 321

Applied and residual stress; materials selection; static, impact, and fatigue strength; fatigue damage; surface treatments; elastic deflection and stability—all as applied to mechanical design.

501. (CEEn-MeEn) Stress Analysis and Design of Mechanical Structures. (3)

Prerequisite: CEEEn 321 or MeEn 372.

Stress analysis and deflection of structures; general bending and torsion with computer applications to mechanical and aerospace structure design.

502. (CEEn-MeEn) Composite and Smart Structures. (3)

Prerequisite: Math 303 or 334; CEEEn 321 or MeEn 372; or equivalents.

Analysis of advanced composite structures; classical and energy approaches; introduction to smart structures concepts.

503. (CEEn-MeEn) Plasticity and Fracture. (3)

Prerequisite: CEEEn 203; MeEn 250; Math 303; senior standing or instructor's consent.

Tensor algebra; stress and deformation tensors; relationships between dislocation slip, yielding, plastic constitutive behavior, and microstructure development; cracks and linear elastic fracture mechanics.

505. Materials, Uses, and Properties of Concrete. (3)

Prerequisite: instructor's consent.

Manufacturing and testing of cements; concrete materials and concrete mix design; techniques of concrete handling, placing, and treatment, including laboratory work.

506. (CEEn-MeEn) Continuum Mechanics and Finite Element Analysis. (3)

Prerequisite: background in linear algebra; CEEEn 321 or MeEn 372; or equivalents.

Equilibrium, constitutive, and compatibility equations; closed-form solutions from elasticity; finite element theory, programming, and usage; membrane, axisymmetric, and solid elements. Application to heat transfer, fluid mechanics, and seepage.

507. (CEEn-MeEn) Computer Analysis and Optimization of Structures. (3)

Prerequisite: background in linear algebra; CEEEn 321 or MeEn 372; or equivalents.

Matrix analysis of rods, shafts, beams, trusses, frames, and grids using the generalized stiffness method. Optimization methods for these structures. Organizing computer programs for structural analysis and structural optimization.

508. (CEEn-MeEn) Dynamics and Stability of Structures. (3)

Prerequisite: Math 303 or 334; CEEEn 321 or MeEn 372; or equivalents.

Dynamic analysis of single degree-of-freedom, discrete multi-degree-of-freedom, and continuous systems. Static and dynamic stability of structures.

514. Engineering Applications of GIS. (3)

Prerequisite: senior or graduate status.

Introduction to GIS concepts.

Data acquisition and database formulation, including use of GPS. GIS uses in civil engineering.

522. Structural Steel Design. (3)

Prerequisite: CEEEn 305, 321, or equivalent.

Compression and tension of steel members, beams, and beam-columns. Elastic and inelastic lateral-torsional buckling. Structural fasteners.

523. (CEEEn-MeEn) Design of Aircraft Structures. (3)

Prerequisite: CEEEn 321 or MeEn 372 or equivalent.

Requirements, objectives, loads, materials, and tools for design of airframe structures; static behavior of thin-wall structures; durability and damage tolerance; certification and testing. Airframe component team design project.

527. Design of Reinforced Concrete Buildings. (3)

Prerequisite: CEEEn 424 or equivalent.

Design for earthquake resistance; torsion effects, slender columns; and two-way slabs.

529. Timber Design. (3)

Prerequisite: CEEEn 321.

Timber species, composition, and grades; design of beams, straight and tapered glue-lam girders, columns, connections, trusses, shear walls, and structural systems.

531. Principles of Hydrologic Modeling. (3)

Prerequisite: CEEEn 431, 433; or equivalents.

Advanced hydrologic and hydraulic principles with an emphasis on modeling for the purpose of planning and designing drainage, flood control, and other water resource facilities.

535. Hydraulic Design of Channels and Control Structures. (3)

Prerequisite: CEEEn 431, 433.

Design of water conveyance channels and control structures, including siphons, chutes, weirs, flumes, dams, spillways, and outlet works.

540. Geo-Environmental Engineering. (3)

Prerequisite: CEEEn 341.

Geotechnical aspects of environmental engineering. Topics include municipal and hazardous solid waste landfill design, and characterization and remediation techniques for contaminated soil and groundwater.

542. Foundation Engineering. (3)

Prerequisite: CEEEn 341 or equivalent.

Soil investigation, bearing capacity and settlement, design of spread footings, combined footings, mat foundations, retaining walls, pile foundations, and drilled shafts.

543. Earth- and Rock-Fill Structures. (3)

Prerequisite: CEEEn 341 or equivalent.

Design and construction of earth- and rock-fill dams, including selecting dam sites and materials, and applying seepage and pore pressure studies, shearing strength data, stability analysis, and construction controls.

545. Geotechnical Analysis of Earthquake Phenomena. (3)

Prerequisite: CEEEn 321, 341.

Earthquake magnitude and intensity potential; design ground motions, elementary dynamics of structures; response spectra; building code provisions; liquefaction and ground failure.

547. Seepage and Groundwater Modeling. (3)

Prerequisite: CEEEn 341, 431; or equivalents.

Techniques for modeling groundwater flow on a regional and local basis. Seepage analysis of levees, excavations, and earth dams.

550. Water Quality Management. (3)

Prerequisite: CEEEn 351.

Philosophies, objectives, and methods of water quality management, including impact of various uses on water quality and behavior of pollutants in receiving waters.

555. Sanitary Engineering Analysis. (3)

Prerequisite: CEEEn 351.

Techniques for chemical and biological analysis of major organic and inorganic constituents of water, sewage, and industrial wastes.

561. Geometric Design of Highways. (3)

Prerequisite: CEEEn 361.

Designing visual aspects of highways; highway classification, design controls and criteria, and design elements; vertical and horizontal alignment, cross sections, intersections, and interchanges; capacity analysis.

562. Characteristics and Operations of Traffic Engineering. (3)

Prerequisite: CEEEn 361 or equivalent.

Traffic flow theory, operations and characteristics, including drivers and vehicles, parking facilities, at-grade intersections, channelization, traffic control devices, signals.

563. Pavement Design. (3)

Prerequisite: CEEEn 305, 361; or equivalents.

Design, construction, evaluation, maintenance, and rehabilitation of flexible and rigid pavements; influence of traffic and environmental factors; mechanistic analysis of pavement structures using computer software.

565. Transportation in Urban Planning. (3)

Prerequisite: instructor's consent.

Street classification and function; design elements of streets, intersections, and access drives; transportation planning studies; land use transportation interrelationships and improvement alternatives.

570. (CEEEn-MeEn) Computer-Aided Engineering Software Development. (3)

Prerequisite: MeEn 273 or C programming.

Programming methods for the development of engineering software. Data structures, architecture, libraries, and graphical user interfaces, with applications to CAD systems.

572. (CEEn-MeEn-CS 557) Computer-Aided Geometric Design. (3)

Prerequisite: proficiency in C programming.

Mathematical theory of free-form curves and surfaces and solid geometric modeling. Bezier and B-spline curve and surface theory, parametric and implicit forms, intersection algorithms, topics in computer algebra, and free-form deformation. Several programming projects required.

575. (CEEn-MeEn) Optimization Techniques in Engineering. (3)

Prerequisite: Math 302 and FORTRAN, C, or similar computer language background.

Application of computer optimization techniques to constrained engineering design. Theory and use of state-of-the-art computer routines. Robust design methods.

580. Hazardous Waste Management and Control. (3)

Prerequisite: CEEEn 351 or instructor's consent.

Hazardous waste statutes and regulations; introduction to hazardous waste treatment, storage, disposal, and monitoring techniques.

594R. Selected Problems in Civil and Environmental Engineering. (1-3)**606. (CEEn-MeEn) Mechanics and Finite Elements for Beams, Plates, and Shells. (3)**

Prerequisite: CEEEn-MeEn 506.

Beam and plate theories, including flexural and shear deformation. Large displacement beam and plate theory. Axisymmetric shells and general curved shells. Finite element analysis of beams, plates, and shells, including buckling analysis.

608. (CEEn-MeEn) Nonlinear Analysis of Structures. (3)

Prerequisite: CEEEn-MeEn 506, 508.

Geometrically nonlinear analysis of trusses, frames, membranes, and plates, including buckling and large deformation analysis. Materially nonlinear analysis, including plasticity and viscoelasticity.

609. (CEEn-MeEn) Spectral Analysis of Dynamic Systems. (3)

Prerequisite: Math 302 or equivalent.

Digital signal processing and analysis applied to computer-aided testing, system identification, and characterization of random processes. Applications include vibration and acoustic testing, seismic recording and analysis, and system identification for control.

622. Design of Steel Buildings. (3)

Prerequisite: CEEEn 522.

Background and development of UBC seismic provisions, analysis and design of multistory steel frames, in-depth treatment of shear and moment connections, design of horizontal and vertical diaphragms.

626. Design of Bridge Structures. (3)

Prerequisite: CEEEn 424, 522.

Design of composite, continuous beam, and girder bridges, including piers, abutments, floor systems, and bearings; field trips to observe bridge construction and fabrication.

641. Advanced Soil Mechanics. (3)

Prerequisite: CEEEn 341 or equivalent.

Advanced discussion and analysis of shear strength of soils, stress distribution in soils, and slope stability analysis.

644. Advanced Foundation Engineering. (3)

Prerequisite: CEEEn 341 or equivalent.

Lateral pressures and earth retaining system, axial and lateral capacities of piles and drilled shafts, foundations subjected to vibratory loadings, foundations on collapsible and expansive soils, soil improvement techniques.

645. Field and Laboratory Testing of Soils. (3)

Prerequisite: CEEEn 341, 542.

Field and laboratory testing procedures used in geotechnical engineering practice: penetration, consolidation, permeability, and shear strength.

648. Groundwater Contaminant Transport. (3)

Prerequisite: CEEEn 547.

Fate and transport of groundwater contaminants down gradient from a spill site. Advection, dispersion, adsorption, biodegradation. Computer simulation of actual sites.

650. Water Treatment Facilities Design. (3)

Prerequisite: CEEEn 351.

Evaluation, selection, and design of water treatment facilities.

651. Wastewater Treatment Facilities Design. (3)

Prerequisite: CEEEn 351.

Evaluation, selection, and design of wastewater treatment facilities.

654. Industrial Waste Treatment. (3)

Prerequisite: CEEEn 650 or 651 (may be concurrent).

Treatment and disposal of industrial wastes; basic industries and their waste problems.

662. Traffic Simulation and Analysis. (3)

Prerequisite: CEEEn 562 or instructor's consent.

Simulating and analyzing highway capacity, traffic flow, and traffic control problems; potential solutions using computer models.

691R. Civil and Environmental Engineering Seminar. (0.5)**694R. Selected Problems in Civil and Environmental Engineering. (1-3)****698R. Master's Project. (1-3)**

Prerequisite: graduate committee's consent.

699R. Master's Thesis. (1-9)

Prerequisite: graduate committee's consent.

794R. Selected Topics in Civil and Environmental Engineering. (1-3)**797R. Research for Doctoral Students. (1-9)****799R. Doctoral Dissertation. (1-9)**

Prerequisite: graduate committee's consent.

FACULTY

- BALLING, RICHARD J.**, *Professor*. PhD, University of California, Berkeley, 1982. Structural Mechanics.
- BARTLETT, STEVEN F.**, *Adjunct Assistant Professor*. PhD, Brigham Young University, 1992. Geotechnical Engineering.
- BENZLEY, STEVEN E.**, *Professor*. PhD, University of California, Davis, 1971. Structural Mechanics.
- BORUP, M. BRETT**, *Associate Professor*. PhD, Clemson University, 1985. Environmental Engineering.
- CLEMENT, PRABHAKAR T.**, *Adjunct Assistant Professor*. PhD, Auburn University 1993. Water Resources/Environmental.
- FONSECA, FERNANDO S.**, *Associate Professor*. PhD, University of Illinois, 1996. Structures.
- GERBER, TRAVIS M.**, *Assistant Professor*. PhD, Brigham Young University, 2003. Geotechnical Engineering.
- GUTHRIE, W. SPENCER**, *Assistant Professor*. PhD, Texas A&M University, 2002. Materials and Pavements.
- JENSEN, DAVID W.**, *Professor*. PhD, Massachusetts Institute of Technology, 1986. Structures; Advanced Composites.
- JONES, NORMAN L.**, *Professor*. PhD, University of Texas, Austin, 1990. Geotechnical Engineering.
- LUCAS, WARREN K.**, *Assistant Professor*. PhD, University of Kansas, 2001. Structures.
- MILLER, A. WOODRUFF**, *Professor*. PhD, Stanford University, 1975. Hydrology; Hydraulics.
- NELSON, E. JAMES**, *Associate Professor*. PhD, Brigham Young University, 1994. Surveying; GIS; Hydrology.
- ROLLINS, KYLE M.**, *Professor*. PhD, University of California, Berkeley, 1987. Geotechnical Engineering.
- SAITO, MITSURU**, *Professor*. PhD, Purdue University, 1988. Transportation Engineering.
- SCHULTZ, GRANT G.**, *Assistant Professor*. PhD, Texas A&M University, 2003. Traffic; Transportation Engineering.

ZUNDEL, ALAN K., *Associate Research Professor*. PhD, Brigham Young University, 1994. Hydraulic Modeling.

COMMUNICATIONS

Chair: Ed Adams

Graduate Coordinator: Sherry Baker

F-467 HFAC

Provo, UT 84602-6403

(801) 422-7022

THE PROGRAM OF STUDIES

The Department of Communications offers a broad-based master's program designed to promote critical thinking and research with a particular focus on the interface between media and society.

The program of study prepares students with the theoretical background, methodological expertise, and critical thinking skills needed both for continued studies at the doctoral level and informed professional practice by emphasizing communications theory and research. Specialized topical areas include literature and philosophy of communications; communications history and historical research methods; media, religion, and family; international media and communications; communications law and legal research methods; media ethics; persuasion and public opinion; critical approaches to media; mass communications and gender; and media and current societal issues.

One graduate degree is offered through the Communications Department: Mass Communications—MA. A minor in mass communications also is offered.

From ten to fifteen students are admitted to the master's program each fall semester. The average time spent in completing requirements for the master's degree is from two to two and a half years.

Mass Communications—MA

The master's program is intended to serve as preparation for:

- Doctoral studies where theory, teaching, research, and publication are emphasized.

- Advancement in communications professions.

Beyond the courses required by the department, students select—in consultation with advisors—the specific courses that best meet their goals and interests. Generally, students with non-communications undergraduate majors will be expected to concentrate on communications electives. Those with a communications baccalaureate are encouraged to seek broadening electives outside the department. Consult with your graduate committee chair and the graduate coordinator about these issues.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 28.
- Application requirements: the entrance examination is the GRE; minimum required GPA is 3.0 for last 60 semester hours of baccalaureate work. There is no predetermined required score for the GRE, but applications are reviewed competitively, and potential students are encouraged to prepare thoroughly before taking the test.
- Prerequisites: baccalaureate degree (if undergraduate preparation in communications is not adequate, the department graduate coordinator may require certain undergraduate communications courses to satisfy the deficiency); background in research and statistics (prerequisite course in statistics or social science research methods required); professional competence in written and spoken English (professional experience in communications is desirable).

Requirements for Degree.

- Credit hours (30): minimum 24 hours of course work.
- Required courses: Comms 609, 610, 611, 616 (12 hours).
- Electives: 12 credit hours from Comms 604, 605, 607, 612R, 613, 614, 615, 617, 619, 621, 622, 691R, 692R, 695R, and/or interdisciplinary substitute courses (with prior approval). Electives determined in consultation with advisor and committee.

- Thesis (Comms 699R, 6 hours minimum).
- Examinations: (A) written comprehensive examination; (B) final oral examination and defense of thesis.

Mass Communications—Minor

Consult with the graduate coordinator regarding a recommended program of study. A minimum of 9 semester hours is required, plus a comprehensive examination.

FINANCIAL ASSISTANCE

The principal types of financial aid and awards available to mass communications graduate students are teaching and research assistantships. Under the direction of faculty, teaching assistants oversee undergraduate classes and labs in advertising, broadcasting, journalism, and public relations. Research assistants work closely with graduate faculty in their research and publication activities. For an application contact Bobeta Powell at E-509 HFAC, Provo, UT 84602-6403, or bobeta_powell@byu.edu.

RESOURCES AND OPPORTUNITIES

Facilities. The Communications Department is housed in the Harris Fine Arts Center. Also affiliated with the department are journalism, advertising, and broadcast laboratories; radio and television studios; and a converged newsroom (NewsNet). Graduate students interested in applied studies may structure work in these media outlets into their programs.

Communications Research Center. Computers with SPSS and other research software are available in the department's research center. Mass communications graduate students can receive research assistance from the director of the Communications Research Center.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

604. Communications History and Historical Research Methods. (2)

In-depth investigation of the history of mass media, including study of historical research methods.

605. Critical Approaches to Media. (2)

Methods and usefulness of communication criticism; critical approaches to media analysis; relating criticism to communication process components and media literacy.

607. International Media and Communications. (2)

Role of communication internationally and its impact on culture, ethics, morality and politics around the world. Comparison of communication systems, media flows, and communications among countries.

609. Introduction to Graduate Studies. (2)

Introduction to graduate education, communications theory, research, and academic writing. Faculty research programs presented.

610. Studies in Communications Theory. (3)

Nature and content of contemporary mass communications theory.

611. Communications/Social Science Research Methods. (4)

Prerequisite: Stat 221 or equivalent and/or social science research methods.

Major methods of research used in communications studies.

612R. Research Practicum. (1–2)

Practical experience in research under direction of individual faculty.

613. Literature of Communications Philosophy. (2)

Literature that contributes to understanding the philosophy and functioning of communications.

614. Seminar on Media Ethics. (2)

Review of literature and research on ethics and responsibility in professional communications practice.

615. Persuasion and Public Opinion. (2)

Concepts of public opinion and their links to interpersonal and societal processes and to the mass media.

616. Seminar in Mass Media, Society, and Culture. (3)

Prerequisite: Comms 609, 610, 611.

Mass media's roles in major social settings, historical development of open-system societies, media effects, and cultural studies in media as a reflection of contemporary society.

617. Communications Law and Legal Research Methods. (2)

Contemporary legal relationship between government and communications; philosophical and historical basis for regulation in light of constitutional guarantees; legal research methods.

619. Mass Communications and Gender. (2)

Gender issues related to the communication process. Implications of recent theoretical developments in the feminist literature for communication studies.

621. Seminar on Media, Religion, and Family. (2)

Literature review regarding the interface of media, religion, and family.

622. Seminar on Media and Current Societal Issues. (2)

Seminar on preannounced societal issue or issues (such as environment, impact of new technologies, vulnerable audiences, consumerism, nonprofits, health communications, terrorism, etc.).

691R. Special Studies in Communications. (1-3)

Prerequisite: approval of committee chair and graduate coordinator.

Individual study with a graduate faculty member. Course and subject must be approved by committee chair and graduate coordinator before registration.

692R. Professional Practicum. (1-3)

Prerequisite: committee chair and graduate coordinator approval.

Individual work in professional communications settings, with oversight and assessment by graduate faculty member.

695R. Topical Seminar. (1-3)

Seminar on focused preannounced topic relating to specific media issues, often taught by visiting scholar or media professional.

699R. Master's Thesis. (6V)

FACULTY

ADAMS, EDWARD E., Associate

Professor. PhD, Ohio University, 1993. Media Management and Economics.

BAKER, SHERRY L., Associate Professor.

PhD, University of Utah, 1994. Communications and Persuasion Ethics; Cultural History as Evidenced in Media Texts.

CRESSMAN, DALE L., Assistant

Professor. PhD, University of Utah, 2003. Broadcast and Print Journalism History.

CUTRI, CHRISTOPHER, Assistant

Professor. MFA, Art Center College of Design, 1997. Creative Advertising.

EGAN, KATHRYN S., Professor. PhD,

University of Southern California, 1972. Philosophy of Communication; Ethics of Entertainment.

GRIFFITHS, THOMAS A., Associate

Professor. PhD, University of Utah, 1992. Media History, Management, and Economics; Programming and Audiences; News Reporting and Production.

MARTIN, DENNIS G., Professor. PhD,

University of Illinois, 1985. Advertising; Advertising History; Cultural and Human Studies.

PALMER, ALLEN W., Associate

Professor. PhD, University of Utah, 1996. International Mass Communications Systems; Media and the Environment.

PLOWMAN, KENNETH, Associate

Professor. PhD, University of Maryland, 1995. Conflict Resolution; Public Relations Management; High-Tech Public Relations.

RANDLE, QUINT B., Assistant Professor.

PhD, Michigan State University, 2001. Magazines; New Media; Newspapers.

RAWLINS, BRADLEY L., Assistant

Professor. PhD, University of Alabama, 1995. Public Relations Theory; Organizational Behavior; Public Relations Ethics.

ROBINSON, THOMAS E., Assistant

Professor. PhD, University of Southern Mississippi, 1996. Portrayal of the Elderly in Media Advertising.

STOKER, KEVIN, Assistant Professor.

PhD, University of Alabama, 1998. Media History; Public Relations Ethics.

STOUT, DANIEL A., Associate Professor.

PhD, Rutgers University, 1993. Media and Religion; Social Impacts of Mass Media.

TANNER, ELIZA A., Assistant Professor.

PhD, University of Wisconsin, Madison, 2000. International Communications; Latin America; Internet.

THOMSEN, STEVEN R., Associate

Professor. PhD, University of Georgia, 1994. Media Effects; Media and Adolescent Socialization.

WILSON, LAURIE J., Professor. PhD,

American University, 1988. Public Relations; Service Learning; International Communications.

COMPUTER SCIENCE

Chair: Tony Martinez
Associate Chair: Parris Egbert
Graduate Coordinator: David W. Embley

3361 TMCB
 Provo, UT 84602-6576
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THE PROGRAM OF STUDIES

The Department of Computer Science offers two degrees: Computer Science—MS and Computer Science—PhD. On the average, the MS program in computer science has about one hundred students, and the PhD program has about fifteen.

The MS degree is designed to prepare students either to be technically capable of leading development teams in industrial software development or to be ready to continue on for a PhD. The PhD degree prepares students to be researchers and teachers either in industry or academia. Areas of particular emphasis are listed under Resources and Opportunities and under research faculty interests.

The expected duration of the MS program for full-time students who enter without deficiencies is one and a half years. Depending on the number of deficiencies, some students may require additional semesters. Students may not enter the PhD program with deficiencies. For full-time students in the PhD program, the expected duration is three years for those entering the program with an MS in computer science and from four to four and a half years for those entering without an MS in computer science. These expectations assume that students take a full graduate load and begin and complete the steps in their thesis or dissertation research in a timely manner.

Computer Science—MS

Mission Statement. Students should be exposed to and participate in leading-edge research. Depending on their long-range objectives, students should also do one or more of the following:

- Develop skills for critical thinking and for analyzing results.
- Learn to write technically and articulately.
- Evolve research ideas and produce research results.
- Learn about group development and be technically capable of leading a development team.
- Demonstrate ability to develop software for industrial-size problems.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 15 (U.S. and international); winter, May 15 (U.S. and international); spring, September 15 (U.S. and international).
- Entrance examinations: GRE general test, and the TOEFL examination for those whose native language is not English.
- Prerequisite: baccalaureate degree in computer science or equivalent course work in related undergraduate programs. A student without an acceptable undergraduate degree in computer science may be admitted provisionally into the MS program.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (CS 699R).
- Required courses: determined in consultation with graduate committee.
- Thesis: departmental acceptance of thesis proposal before beginning thesis research.
- Examinations: oral defense of thesis.

While in the MS program, students are expected to make steady and satisfactory progress toward their degree. Progress reviews take place three times each year. Students who

fail to make appropriate progress will be dropped from the program.

Computer Science—PhD

Mission Statement. Students should be able to:

- Generate new ideas.
- Convince others that their ideas are worth pursuing.
- Do the necessary research to demonstrate that their ideas are viable.
- Communicate the results of their research orally and in the published literature.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 15 (U.S. and international); winter, May 15 (U.S. and international).
- Entrance examinations: GRE general test and GRE subject test in computer science. The TOEFL examination is required for those whose native language is not English.
- Prerequisite: baccalaureate degree in computer science or equivalent (students with undergraduate deficiencies should enroll in the MS program).

Requirements for Degree.

- Credit hours (66): minimum 48 course work hours plus 18 hours of dissertation research. Must include CS 610 and 612.
- Dissertation.
- Milestones:
 1. Qualifying process: (A) pass courses demonstrating broad proficiency in computer science and (B) produce a satisfactory research paper.
 2. Research area examination: for the chosen dissertation research area (A) write an outline for a survey of the research area and (B) make an oral presentation of and answer questions about the research area.
 3. Dissertation proposal: demonstrate preparedness to do dissertation research.
 4. Dissertation defense: make an oral presentation that defends the dissertation research.

- Residency: a student must spend at least the last three consecutive semesters as a full-time resident (combined spring and summer terms count as one semester).
- Teaching: all students must teach at least one course.

While in the PhD program, students are expected to make steady and satisfactory progress toward their degree. Progress reviews take place twice each year. Students who fail to make appropriate progress will be dropped from the program.

FINANCIAL ASSISTANCE

The Computer Science Department recognizes that most students require financial assistance to remain in school. The department has funds in the following forms: teaching and research assistantships and tuition awards.

RESOURCES AND OPPORTUNITIES

The Computer Science Department offers research in the following areas:

Artificial intelligence
 Formal verification
 High-performance networks and computing
 Human-computer interaction
 Information extraction and integration
 Learning and information dynamics
 Machine learning
 Mobile computing and wireless data communications
 Natural language processing
 Neural networks
 Performance and dependability
 Quantum computing
 Security
 Vision, imaging, and computer graphics

For more detailed information please see our Web site: www.cs.byu.edu

COURSE DESCRIPTIONS

501R. Advanced Topics in Computer Science. (1–3)

Prerequisite: instructor's consent.

Advanced undergraduate- and graduate-level subjects as announced before each semester.

557. Computer-Aided Geometric Design. (3)

Prerequisite: CS 240, Math 343; or equivalents.

Free-form curves and surfaces: mathematical theory and algorithms. Bezier and B-spline curves and surfaces, subdivision surfaces, T-splines, free-form deformation, and intersection algorithms. Several programming projects.

579. Natural Language Processing. (3)

Prerequisite: instructor's consent.

Machine translation, human-computer dialog, question answering, parsing, and generating from an artificial intelligence and machine learning perspective.

586. Formal Methods in Computer System Design. (3)

Prerequisite: CS 236, 312; or equivalent.

Use of formal specification and verification in the design of computer systems. Introduction to model checking algorithms and the state explosion problem.

598R. Special Projects. (1–3)

Prerequisite: instructor's consent.

601R. Special Topics in Computer Science. (3)

Prerequisite: instructor's consent.

Subjects as announced before each semester.

611. Theoretical Foundations of Computing. (3)

Prerequisite: CS 252 or equivalent; CS 312 or instructor's consent.

Proofs (deductive and inductive reasoning), computability (models of computability and computability issues), and complexity (time and space bounds, nondeterminism, and complexity classification).

621. Pattern Recognition. (3)

Prerequisite: CS 450 or equivalent.

Design and use of pattern classifiers for recognition and classification of one- and two-dimensional signals such as voice, images, and handwriting. Emphasis on images.

631. Compiler Theory and Design. (3)

Prerequisite: CS 431 or equivalent.

Theory and design of compilers and interpreters, including syntax-directed compilers and meta-compilers.

650. Computer Vision 1. (3)

Prerequisite: CS 450 or equivalent.

Machine vision, image segmentation, mathematical morphology, image enhancement and filtering, edge detection, feature extraction, neighborhood operators, region growing, boundary detection, scene segmentation, and matching.

651. Theoretical Foundations of Object-Oriented Data Engineering. (3)

Prerequisite: CS 452 or instructor's consent.

Applying model and proof theory to object-oriented database development and data engineering; constructing theory-based tools; conceptual model formalization; topics of current interest.

652. Information Extraction and Integration. (3)

Prerequisite: CS 452 (or equivalent) and/or 553.

Information extraction from structured, semistructured, and unstructured documents, including Web documents; integrating heterogeneous source information; theoretical foundations of information modeling; topics of current interest.

653. Information Retrieval. (3)

Prerequisite: CS 236 or equivalent.

IR modeling, IR query languages, text indexing and searching, retrieval evaluation, query and text operations, parallel and distributed IR, Web searching.

655. Advanced Computer Graphics. (3)

Prerequisite: CS 455 or instructor's consent.

Advanced computer graphics systems programming and architecture, including ray tracing, radiosity, animation, and physically based modeling.

656. Interactive Software Systems. (3)

Prerequisite: CS 330, 456; or instructor's consent.

Advanced techniques for interacting with humans using pen-based, speech-based, hand-held, wall-sized, and room-sized devices. Embedding computing in everyday objects.

660. Computer Networks. (3)

Prerequisite: CS 460, Stat 321; or equivalents.

Computer networking, software architecture, organization, protocols, routing, global networks, local networks, internetworking, standards, and applications.

665. Advanced Computer Security. (3)

Prerequisite: CS 465 or instructor's consent.

Authentication and authorization using digital credentials.

668. Wireless Data Communications. (3)

Prerequisite: CS 460 or equivalent.

Systems and protocols, radio frequency (RF) and infrared (IR) transports, ad hoc networking, wireless performance analysis, cellular communication, wireless LANs, satellite communications.

670. Multi-Agent Systems. (3)

Prerequisite: CS 470 or equivalent; CS 478 or instructor's consent.

Introduction to fundamental concepts emphasizing current literature. Topics include game theory, repeated play games, Arrow's impossibility theorem, negotiation, search, and learning.

674. Quantum Computation. (3)

Prerequisite: CS 252, 312, Math 343; or instructor's consent.

Introduction to theory of quantum computing and its impact on the science of computation. Introduces basic ideas in quantum information processing and focuses on quantum algorithms.

677. Bayesian Methods in Computer Science. (3)

Prerequisite: CS 470 or instructor's consent.

Applying Bayesian methods useful for incorporating confidence or belief into problems in computer science, allowing computers to better handle uncertainty.

678. Advanced Neural Networks and Machine Learning. (3)

Prerequisite: CS 478 or equivalent.

Advanced models, algorithms, and approaches in neural networks and machine learning.

680. High Performance Computer Architecture. (3)

Prerequisite: CS/ECEn 324 or equivalent.

Advanced topics in computer architecture, including pipelining, superpipelining, VLIW, superscalar, branch prediction, and speculative execution.

684. Parallel Processing. (3)

Prerequisite: CS 324, 345; or equivalent.

Theoretical and practical study of parallel processing including a discussion of parallel architectures, parallel programming languages, and parallel algorithms.

686. Advanced Model Checking. (3)

Prerequisite: CS 486 or 586.

Techniques for managing state explosion and specialized algorithms for verifying classes of infinite state systems.

699R. Master's Thesis. (Arr.)

Prerequisite: committee chair's consent.

750. Computer Vision 2. (3)

Prerequisite: CS 650.

Advanced topics in computer vision: radiometric model; photometric stereo; shape from shading; monocular, binocular models; perspective projective geometry; image matching; depth from stereo; exterior, relative, interior, absolute orientation; optical flow.

751R. Advanced Topics in Database Systems. (3)

Prerequisite: graduate standing and instructor's consent.

778R. Topics in Neural Networks and Machine Learning. (3)

Prerequisite: CS 678.

Advanced topics and readings in neural networks and machine learning.

786R. Readings in Model Checking. (3)

Prerequisite: CS 686.

Focused readings and projects as suggested by class interest and current trends.

799R. Doctoral Dissertation. (1-9)

Prerequisite: committee chair's consent.

FACULTY

BARRETT, WILLIAM A., *Professor.* PhD, University of Utah, 1978.

Computer Vision; Image Processing; Pattern Recognition.

BURTON, ROBERT P., *Professor.* PhD, University of Utah, 1973.

Hyperdimensional Computer Graphics; Visualization.

CLEMENT, MARK J., *Associate Professor.* PhD, Oregon State University, 1994. Parallel Processing; High-Performance Networks; Telecommunications.

CORNELL, AUREL, *Professor.* PhD, Polytechnic Institute of Timisoara (Romania), 1971. Distributed / Concurrent Programming.

EGBERT, PARRIS K., *Associate Professor.* PhD, University of Illinois, 1992. Computer Graphics; Visualization; Virtual Reality.

EMBLEY, DAVID W., *Professor.* PhD, University of Illinois, 1976. Database Systems; Conceptual Modeling; Information Extraction.

FLANAGAN, J. KELLY, *Associate Professor*. PhD, Brigham Young University, 1993. Computer Architecture; Performance Evaluation; Digital System Design.

GOODRICH, MICHAEL A., *Assistant Professor*. PhD, Brigham Young University 1996. Decision Theory; Artificial Intelligence; Human-Machine Interaction.

JONES, MICHAEL D., *Assistant Professor*. PhD, University of Utah, 2001. Formal Verification.

KNUTSON, CHARLES D., *Assistant Professor*. PhD, Oregon State University, 1998. Wireless Data Communications; Software Engineering; Software Patterns; Multiparadigm Design.

LANGKILDE-GEARY, IRENE, *Assistant Professor*. PhD, University of Southern California, 2002. Statistical Natural Language Processing; Machine Learning.

MARTINEZ, TONY, *Professor*. PhD, University of California, Los Angeles, 1986. Neural Networks; Machine Learning.

MERCER, ERIC G., *Assistant Professor*. PhD, University of Utah, 2002. Formal Methods; Dynamic Timing Analysis; Timed Circuits.

MORSE, BRYAN S., *Associate Professor*. PhD, University of North Carolina, 1994. Computational Vision; Image Processing; Medical Imaging.

NG, DENNIS, *Associate Professor*. PhD, Kansas State University, 1991. Database Systems; Information Retrieval; Bioinformatics.

OLSEN, DAN R., *Professor*. PhD, University of Pennsylvania, 1981. Human-Computer Interfaces; Programming Environments; Computer Graphics.

SEAMONS, KENT E., *Assistant Professor*. PhD, University of Illinois, 1996. Security; Distributed Systems; Parallel Systems.

SEDERBERG, THOMAS W., *Professor*. PhD, Purdue University, 1983. Computer Graphics; Computer-Aided Geometric Design.

SEPPI, KEVIN, *Assistant Professor*. PhD, University of Texas, 1990. Bayesian and Other Models for Artificially Intelligent Decision Making.

SNELL, QUINN O., *Associate Professor*. PhD, Iowa State University, 1997. Parallel Programming; Graphics; Networking.

VENTURA, DAN A., *Assistant Professor*. PhD, Brigham Young University, 1998. Neural Networks and Machine Learning; Quantum Computing.

WARNICK, SEAN C., *Assistant Professor*. PhD, Massachusetts Institute of Technology, 2003. Information Dynamics.

WOODFIELD, SCOTT N., *Professor*. PhD, Purdue University, 1980. Software Design; Reusability; Software Engineering.

COUNSELING PSYCHOLOGY AND SPECIAL EDUCATION

Chair: Mary Anne Prater

340 MCKB

Provo, UT 84602-5093

(801) 422-3857

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School Counseling Psychology Graduate

Coordinator: Timothy B. Smith

(801) 422-1311

Special Education Graduate

Coordinator: Tina T. Dyches (801) 422-

5045

Counseling Psychology Graduate

Coordinator: Steven A. Smith

(801) 422-3035

THE PROGRAM OF STUDIES

The Department of Counseling Psychology and Special Education prepares educators and professionals who work primarily with individuals or small groups. The programs offered in the department all pursue at least two common goals. The first is to help individuals enhance the quality of their lives through meaningful personal, educational, and career development. A second common goal is to assist people in overcoming barriers to learning and to success and happiness in life. These barriers include difficulty in thinking, reading, studying, learning, making decisions, relating to others, understanding the impact of their behavior, etc.

The programs utilize a scientist-practitioner model where students and faculty enhance science and learning through research and inquiry. Further, in dealing with those whom they serve, they apply the principles learned. Since their work is often highly personal, it is essential that students possess/develop integrity and professional standards of ethical conduct. They must also develop the knowledge and skills essential to promote posi-

tive change in individuals struggling with important aspects of their lives. The settings in which graduates typically serve include public and private schools, colleges, and universities.

Each program assists students in planning individual course work, receiving supervised practical experience, and obtaining appropriate credentials (certification and licensure).

Three degrees are offered through the Department of Counseling Psychology and Special Education: Special Education—MS; School Counseling Psychology—MS; and Counseling Psychology—PhD.

The average number of students admitted each year varies by program as follows:

Special Education	10
School Counseling	
Psychology	16
Counseling Psychology	6

Special Education—MS

The program in special education focuses on preparing thoughtful, ethical, and moral professionals who understand and respond effectively to the needs of students with disabilities and their families. Additionally, the program emphasizes developing master special educators who provide leadership in problem solving and collaborative relationships with professionals and families.

Two areas of emphasis are available within the graduate program: Pupils with Mild/Moderate Disabilities and Pupils with Severe/Profound Disabilities.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: GRE or MAT examination and the Area of Special Education Application for Admission and related candidate evaluation forms.
- Prerequisite: completion of an undergraduate degree and/or license in early childhood, elementary, secondary, or special educa-

tion and successful experience as a general or special education teacher in a public school or related setting.

Requirements for Degree.

- Credit hours : 42 hours minimum; students without background in special education are required to complete licensure courses; these students will complete a minimum of 46 hours for the master's degree.
- Required courses: consult area specialty coordinators.
- Residence: all course work must be completed on BYU campus or in related partnership or approved school site.
- Examinations: written comprehensive examination.

School Counseling Psychology—MS

The MS degree in school counseling psychology (CACREP-accredited) prepares students to pursue certification as both counselors and school psychologists in K–12 educational settings. Knowledge and competency areas include counseling (individual and group); responsive services; consultation with parents, teachers, school administrators, and other professionals; child and adolescent psychopathology; learning theory; career development; comprehensive guidance programming; promotion of healthy growth and development; prevention of problems; assessment leading to intervention with educational, personal/social, career, and mental health issues; multicultural counseling; professional roles and expectations; ethics; family and institutional systems; and research and evaluation.

This nonthesis program requires full-time day attendance. Students are placed in practicum early in the program. The full-year internship is completed at sites where counseling and psychological services are provided under the supervision of a certified/licensed site supervisor and a university faculty supervisor.

Admission and Entry.

- Semesters of entry and application deadlines: summer, January 15 (U.S. and international).
- Application requirements: the entrance examination is the GRE general test. When taking the GRE, use the institutional number R 4019. Application will not be considered without GRE scores. Because of the nature of the helping professions, both academic and personal qualifications are considered in selecting applicants and in evaluating, retaining, and graduating students.
- Prerequisite: undergraduate major in education, psychology, or one of the social sciences is preferred but not required; experience in a helping profession is desired but not required.

Requirements for Degree.

- Credit hours: minimum 64 hours of approved course work including practica and internship.
- Required courses: consult department program documents.
- Residence: full-time day attendance first two years, followed by a nine-month internship in a school setting.
- Examination: written comprehensive.
- Internship: see department program documents for specifics.

Counseling Psychology—PhD

The PhD in counseling psychology is fully accredited by the American Psychological Association. It is primarily psychological in nature and is based upon the scientist-practitioner model of training. The scientist-practitioner model is an integrated approach to training that acknowledges the interdependence of theory, research, and practice.

The counseling psychology program at BYU emphasizes the educational, developmental, and preventive functions of counseling psychologists and counselor educators. Students are primarily prepared to work as counseling psychologists in counseling centers and in academic departments in university and

college settings. Students are also prepared to make remedial interventions. Graduates typically accept positions as counselors or psychologists in college or university counseling centers or as scholars/faculty members in counseling psychology or counselor education programs. Others serve in agencies or private practice as licensed psychologists.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15 (U.S. and international).
- Application requirements: the entrance examination is the GRE general test. When taking the GRE, use the institutional number R 4019. Applications will not be considered without GRE scores. Because of the nature of the helping professions, both academic and personal qualifications are considered in selecting applicants and in evaluating, retaining, and graduating students.
- Prerequisite: bachelor's or master's degree in counseling or psychology or in a closely related field.

Requirements for Degree.

- Credit hours: 106 plus dissertation and internship.
- Required courses: consult department program documents.
- Residence: minimum two consecutive full-time semesters while matriculated in the doctoral program (minimum 6 credit hours each semester) on the BYU Provo campus.
- Skill requirement: consult department.
- Predoctoral internship (2,000 hours).
- Dissertation.
- Examinations: (A) counseling performance evaluations; (B) written comprehensive examination at completion of course work; (C) oral defense of dissertation.

FINANCIAL ASSISTANCE

Graduate Assistantships. Graduate assistantships include working with selected faculty members on research projects, curriculum development, and other assignments for 5 to 20

hours per week. Several other organizations on campus, such as the Counseling and Career Center, often request students to serve as graduate assistants. A student must apply for the assistantships **each** semester or term.

Partial-Tuition Scholarships.

Applications are reviewed on the basis of scholarship and financial need. The award is usually either a one-quarter or one-half tuition scholarship.

Scholarships. A small number of modest, specific-interest scholarships are also available.

Contact the department secretary for application forms, deadlines, and additional information about departmental financial assistance.

Other sources of financial aid are available to students through the Financial Aid Office, A-41 ASB, Provo, UT 84602-1009.

RESOURCES AND OPPORTUNITIES

School Counseling Psychology Center. This center affords students an opportunity to learn and practice a variety of applications for the principles and theories they study in their course work. Through practical applications students gain valuable experience in diagnosing learning and achievement difficulties; remedying learning and behavioral problems; consulting with parents, teachers, and other professionals regarding strategies for helping the center's clients; counseling individuals with academic, vocational, or personal problems; and giving career assessment and guidance to young people and adults.

Computer Laboratories. Terminals in the computer laboratories provide graduate students direct line access to the university's computers, enabling students to use several programs, such as SPSS and SAS, to analyze research data. These terminals also permit access to the Internet, library databases, etc.

Graduate Student Project and Research Laboratory. Space is provided for graduate students who are working with faculty on research, evaluation, and development projects.

Study Areas. Graduate study areas are available in the School Counseling Psychology Student Center, the McKay School of Education Teaching and Learning Support Center, and the Harold B. Lee Library.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin or view the department Web page.

COURSE DESCRIPTIONS

Note: CPSE 514R and 515R courses are for licensure purposes only and are listed in the BYU Undergraduate Catalog. No graduate degree credit is given for 514R; 515R credit may count toward a graduate degree if prior approval is obtained from the graduate committee.

503. Education of Individuals with Disabilities. (3)

Prerequisite: concurrent registration in student teaching or internship.

Developing, implementing, and evaluating programs for individuals with disabilities.

518. Introduction to Gifted/Talented Education. (2)

Various approaches to educating the gifted and talented.

519. Assessment: Severe Disabilities. (1-3)

Foundation course in assessing, diagnosing, and evaluating individuals with severe/profound disabilities.

533R. Practicum in Assessment: Mild/Moderate Disabilities. (1-3)

Assessing, diagnosing, and evaluating individuals with disabilities.

545. Gifted: Creativity and Thinking Strategies. (2)

Nature of creativity and approaches to nurturing it.

546. Helping Relationships: Basic Concepts and Skills. (1-3)

Basic interviewing and helping skills. For students interested in professional, paraprofessional, peer, or lay counseling.

560. Leadership in Student Services. (3)

Independent Study only; no graduate degree credit given for Independent Study.

Applying leadership and administrative theory and methods to student services in school and related educational settings. Helping skills for counselors, school psychologists, principals, teachers, and others interested in the learning and emotional climate of the school.

580R. Directed Observation in the Schools. (1-3)

Prerequisite: instructor's consent.

582R. Practicum: Individuals with Emotional and Behavioral Disabilities. (1-8)

Prerequisite: instructor's consent, CPSE 511, and prior application. Fee.

584R. Practicum: Individuals with Learning Disabilities. (2-8)

Prerequisite: CPSE 526; departmental approval of application and placement one semester in advance of registration. Fee.

586R. Student Teaching: Students with Mild/Moderate Disabilities. (4-12)

Prerequisite: successful completion of all core courses and practica in the special education program.

Culminating experience in the program: teaching students with mild/moderate disabilities in school settings. Fee.

587R. Student Teaching: Students with Severe Disabilities. (4-12)

Prerequisite: successful completion of all core courses and practica in the special education program.

Culminating experience in the program: teaching students with severe disabilities in school settings. Fee.

599R. Academic Internship: Special Education. (4-12)

Prerequisite: successful completion of all core courses and practica in the special education program.

Culminating experience in the licensure program: teaching students with disabilities in a school setting full-time for one academic school year. Fee.

600. Introduction to Counseling and Guidance Services. (3)

Independent Study only; no graduate degree credit given for Independent Study.

Introduction to the counseling profession: history, philosophy, issues, trends, and current status. Role of counselor in school and community agency settings.

602. Child/Adolescent Psychopathology: Diagnosis and Intervention (3)

Etiology and diagnosis of dysfunctional behavior and maladjustment, with interventions for school-age children and adolescents. DSM-IV and IDEA diagnostic systems.

605. Professional Roles and Standards. (1)

Prerequisite: admission to graduate study in school counseling psychology/counseling psychology.

Professional roles, functions, trends, standards, history; professionalism, credentialing, issues; collaborative relationships with other professionals.

606. Psychoeducational Foundations. (3)

Basic educational and counseling philosophy; tests and measurement theory; professional roles and challenges; the school counselor-psychologists' personal impact on students and programs.

609. Advanced Educational Assessment. (3)

Prerequisite: CPSE 532 or equivalent.

Advanced concepts and principles in educational assessment, diagnosis, and evaluation of students at risk and/or with disabilities.

610. Consultation Within School and Family Systems. (3)

Models and methods of consultation with teachers, parents, and professionals.

611R. Practicum in Assessment, Diagnosis, and Evaluation: Mild/Moderate Populations. (3)

Prerequisite: CPSE 532, 533R.

Advanced practicum in assessment, diagnosis, and evaluation of individuals with mild/moderate disabilities.

612. Curriculum and Instruction: Reading and Language Arts for Students with Disabilities. (3)

Prerequisite: CPSE 534 or equivalent.

Advanced concepts and skills in developing curriculum and using specialized instructional approaches for individuals with disabilities, emphasizing reading and language art.

613R. Practicum in Curricula and Effective Instruction: Mild/Moderate Populations. (3)

Prerequisite: CPSE 534, 535R.

Advanced practicum in instructional content and practice with individuals having mild/moderate disabilities.

614. Applied Behavior Analysis. (3)

Principles of applied behavior analysis in context of school programs, human services, families, and communities.

615. Advanced Applied Behavior Analysis. (3)

Prerequisite: CPSE 614 or equivalent.

Application of applied behavior analysis in problem solving, conducting functional assessments, and designing and implementing behavioral interventions.

620. Models of Gifted/Talented Education. (2)

Varied programs for gifted and talented students in the schools.

621. Gifted: Curriculum and Effective Instruction. (2)

Designing curriculum and instruction for gifted and talented students in the schools.

ment theories and their application to attitudinal and behavioral change.

626. Advanced Curriculum in Special Education. (3)

Prerequisite: CPSE 205 or equivalent.

630. Gifted: Practicum. (1-4)

Experience in a school setting under the direction of college faculty.

631. Advanced Assessment, Diagnosis, and Evaluations: Severe/Profound Populations. (3)

Prerequisite: CPSE 532, 533R.

Advanced concepts and principles in assessing, diagnosing, and evaluating individuals with severe/profound disabilities.

632R. Advanced Practicum in Assessment, Diagnosis, and Evaluation: Severe/Profound Populations. (3)

Prerequisite: CPSE 532, 533R.

Advanced practicum in assessing, diagnosing, and evaluating individuals with severe/profound disabilities.

634. Advanced Curricula and Effective Instruction: Severe/Profound Populations. (3)

Prerequisite: CPSE 534, 535R.

Advanced concepts and skills in developing curriculum and using specialized instructional approaches for individuals with severe/profound disabilities.

635R. Advanced Practicum in Curricula and Effective Instruction: Severe/Profound Populations. (1)

Prerequisite: CPSE 534, 535R.

Advanced practicum in instructional content and practice with individuals having severe/profound disabilities.

636. Advanced Management of Behavior and Learning Environments: Severe/Profound Populations. (3)

Prerequisite: CPSE 614, 615R.

Advanced procedures and concepts in managing behavior and learning environments for individuals with severe/profound disabilities.

Populations. (1)

Prerequisite: CPSE 614, 615R.

Advanced practicum in managing behavior and learning environments for individuals with severe/profound disabilities.

644. Career Development and Assessment. (3)

Theories of career development in lifespan and career counseling. Assessing interests, values, and other characteristics related to career decision making.

645. Appraisal Theory and Practice in Counseling. (3)

Testing and appraisal theory. Administration and interpretation of group standardized tests: personality, interest, relationship, achievement, ability, behavior, and career.

646. Counseling Theory and Interventions. (3)

Various theories of counseling, current research, processes, and micro-skills training for interviewing and relationship building. Lab required.

647. Psychometric Foundations and Assessment of Intelligence. (3)

Prerequisite: admission to graduate study in counseling/school psychology or counseling psychology.

Testing and measurement theory and experience in administering, scoring, and interpreting various standardized and individual intelligence tests.

648. Group Counseling and Intervention. (3)

Primarily group approaches to personal and social counseling and guidance, including skill-streaming groups, divorce and loss groups, parent education groups, grief therapy interventions, and problem-focused interventions.

developmental theory across the lifespan, including psychosocial, moral, ego, cognitive, faith, and identity. Developmental implications in the counseling process.

654. Comprehensive Developmental Guidance. (3)

Components and integration of a comprehensive developmental guidance program, including planning, crisis intervention, responsive services, evaluation, guidance curriculum, and applied approach to career guidance.

655. Crisis Intervention. (3)

Human crises; preventive, developmental, and remedial interventions within school and family systems.

656. Spiritual Values and Methods in Psychotherapy. (3)

Spiritual values and perspectives, issues, and approaches in counseling and psychotherapy.

672. Empirical Inquiry. (3)

Introduction to empirical research. Designing, conducting, analyzing, reporting, and evaluating research studies in counseling, school psychology, and related areas.

678R. Practicum: Counseling and School Psychology. (1-3)

Prerequisite: instructor's consent.

Beginning experiences in observing counseling and school psychology techniques in K-12 educational settings. Practicing basic counseling and intervention procedures under individual and group supervision.

679R. Advanced Practicum: Counseling and School Psychology. (1-3)

Prerequisite: CPSE 678R.

Intermediate clinical experience in counseling and school psychology, including individual and group counseling, consultation, testing, in-service, career and education guidance, and therapeutic interventions in an education setting under supervision.

680R. Internship: Counseling and School Psychology. (1-3)

Prerequisite: CPSE 679R.

Concluding supervised practical experience in assessment, counseling, and interventions in a school setting. Testing, consultation, and other activities of the school counseling psychologist. Fee.

690R. Seminar. (1-4)

Check current class schedule for seminar topics.

692R. Advanced Topics. (1-3)

693R. Directed Individual Study. (1-3)

Prerequisite: instructor's consent.

695R. Counseling Seminar. (1-3)

697R. Special Projects. (1-6)

Prerequisite: Stat 552 and CPSE 672 or equivalent.

699R. Master's Thesis. (1-6)

702. Philosophy and Theories in Counseling Psychology. (3)

Introduction to counseling psychology. Philosophical assumptions and theoretical perspectives. Integration of science and practice within a consistent philosophical framework.

710. Ethical/Legal Standards and Issues. (3)

Ethical and legal standards and issues in the helping professions.

715. Diagnosis and Treatment of Mental Disorders. (3)

Diagnosis, classification, and treatment of emotional problems and mental disorders.

725. Objective and Projective Personality Assessment. (3)

Prerequisite: instructor's consent.

Objective assessment of personality (including MMPI) as well as projective techniques (including TAT). Pragmatic psychological report writing.

744. Advanced Career Counseling. (3)

Survey of current research in career psychology. Advanced career counseling techniques focusing on the interface between career and personal issues and the use of assessment.

746. Supervision and Consultation Theory. (3)

Theoretical models and approaches to consultation and supervision of counseling; practice in supervising counselors in training.

748. Advanced Theory of Group Counseling. (3)

Theory and methods of group counseling; advanced skills in conducting group therapy.

749. Data Analysis and Statistics. (3)

Prerequisite: Stat 510, 511, 512; concurrent registration in CPSE 750.

Use of SPSS as a quantitative research tool. Conceptual integration of statistics and research design.

750. Research Theory and Methods in Counseling Psychology. (3)

Prerequisite: CPSE 672, Stat 552 or 510; admission to PhD program in counseling psychology.

Advanced counseling process and outcome research methods. Includes between groups, within-subjects experimental designs; quasi-experimental and times series designs; discovery-oriented, small N, and qualitative research strategies.

751. Counseling Multicultural and Diverse Populations. (3)

Multicultural competency training on issues of race, ethnicity, gender, sexual orientation, age, socioeconomic status, disability, and religion. Knowledge, skills, and awareness applied to counseling.

776R. Advanced Practicum 1: Counseling Psychology. (1-3)

Prerequisite: admission to graduate study in counseling psychology.

Clinical experiences conducted primarily through collaboration with BYU's Counseling and Career Center and focusing on career and educational counseling.

777R. Advanced Practicum 2: Counseling Psychology. (1-3)

Prerequisite: admission to graduate study in counseling psychology.

Clinical experiences and psychotherapeutic training conducted primarily through collaboration with BYU's Counseling and Career Center.

778R. Counseling Psychology Clerkship. (1-3)

Prerequisite: admission to doctoral program in counseling psychology.

Clinical experiences and psychotherapeutic training conducted off campus in an approved community agency clinical setting.

779R. University Teaching Practicum. (3)

Prerequisite: admission to graduate study in counseling psychology.

University teaching under supervision of a faculty member, including teaching or team teaching an undergraduate course and/or team teaching a master's level course (or portions of courses). Weekly supervisory and training session required.

780R. Predoctoral Counseling Psychology Internship. (1-9)

Prerequisite: CPSE 779R, all other course work, and comprehensive examinations.

One calendar year of full-time or two years of half-time supervised clinical counseling and psychotherapy for a total of 2,000 clock hours.

790R. Advanced Seminar in Counseling. (1-3)

Prerequisite: admission to graduate work.

799R. Doctoral Dissertation. (1-9)

Prerequisite: completion of skill requirements.

Formal report and defense of substantive research topic designed to make an original contribution to knowledge in the field. Only 3 hours of 799R may be used in establishing residency requirements.

FACULTY

- ALLEN, MELISSA A.**, *Assistant Professor*. PhD, Texas A&M University, 1996. Conflict and Violence; Crisis Management, Parent Training.
- ASHBAKER, BETTY Y.**, *Assistant Professor*. PhD, Brigham Young University, 1982. Paraeducation; Team Teaching.
- CROOK, RACHEL E.**, *Assistant Professor*. PhD, University of Maryland, College Park, 2002. Psychotherapy Process and Outcome; Dream Interpretation; Therapeutic Alliance; Training and Supervision.
- DYCHES, TINA T.**, *Associate Professor*. EdD, Illinois State University, 1995. Severe Disabilities.
- FISCHER, LANE**, *Associate Professor*. PhD, University of Minnesota, 1991. Counseling; School Psychology.
- GIBB, GORDON S.**, *Associate Professor*. PhD, University of Utah, 1994. Mild/Moderate Disabilities.
- HEAPS, RICHARD A.**, *Professor*. PhD, University of Utah, 1970. Counseling; Victims of Disaster.
- ISAKSON, RICHARD L.**, *Associate Professor*. PhD, Cornell University, 1975. Counseling.
- JACKSON, AARON P.**, *Assistant Professor*. PhD, University of Missouri, Columbia, 1993. Career Development of Native Americans; Counseling Outcomes.
- MARCHANT, MICHELLE**, *Assistant Professor*. PhD, Utah State University, 2000. Emotional/Behavior Disorders.
- OKIISHI, JOHN**, *Assistant Clinical Professor*. PhD, Brigham Young University, 2000. Multicultural Counseling and Training; Forensic Populations; Outcome Assessment; Individual and Group Psychotherapy.
- PRATER, MARY ANNE**, *Professor*. PhD, Utah State University, 1987. Mild/Moderate Disabilities.
- RICHARDS, P. SCOTT**, *Professor*. PhD, University of Minnesota, 1988. Religion and Mental Health; Spirituality and Psychotherapy; Research Methods.

- SCHARMAN, JANET S.**, *Associate Clinical Professor*. PhD, University of Utah, 1992. School Counseling; Individual and Group Counseling; Qualitative Research Methods; Student Development.
- SMITH, STEVEN A.**, *Associate Clinical Professor*. PhD, University of Minnesota, 1988. Individual and Group Counseling; Counseling and Psychotherapy with Adolescents and Adults.
- SMITH, TIMOTHY B.**, *Associate Professor*. PhD, Utah State University, 1997. Consultation; Multicultural Psychology; Spirituality; Identity Development; Quality Relationships.
- WILDER, LYNN K.**, *Assistant Professor*. EdD, Ball State University, 1999. Behavior Disorders; Literacy, Adult Education.
- WILLIAMS, MARLEEN S.**, *Associate Clinical Professor*. PhD, Brigham Young University, 1993. Diagnosis and Treatment of Dysfunctional Behavior; Women's Issues in Mental Health and Counseling Psychology; Religious Issues in Counseling.
- YOUNG, ELLIE L.**, *Assistant Professor*. PhD, University of South Florida, 2001. Gender Issues in Education; Self-Concept.
- YOUNG, K. RICHARD**, *Professor*. PhD, University of Utah, 1973. Educational Psychology; Emotional/Behavioral Disorders; At-Risk Youth and Dysfunctional Families.

DANCE

Chair: Lee Wakefield
Graduate Coordinator: Pat Debenham

294 RB
 Provo, UT 84602-2005
 (801) 422-5087

THE PROGRAM OF STUDIES

The Department of Dance at Brigham Young University defines dance in three dimensions—the physical, the intellectual, and the spiritual. Dance refines and integrates the body, mind, and spirit in a continual pursuit of excellence.

The Dance Department is committed to preparing reflective, articulate dance artists, teachers, and scholars. Honoring and preserving the past as it gives voice to the present and seeks to define the future, the dance program provides for study, research, experimentation, practice, and the creation and performance of new works. And, in addition to rigorous preparation in dance, the department has many opportunities for collaborative work with other arts and science disciplines.

The graduate program requires a breadth and depth of inquiry and exploration that extends beyond individual dance genres and styles, encompassing the theory and principles of the discipline. To this end, the graduate program seeks to enhance an undergraduate foundation in dance with the following academic goals: (1) intensify learning in select areas of emphasis within the dance discipline by providing demanding course work; enhanced creative, pedagogical, and research opportunities; and real-life experiences; (2) foster the development of significant new ideas and creative works through careful research, rigorous intellectual inquiry, and masterful artistic effort; (3) recognize, acknowledge, and preserve our cultural and intellectual heritage; and (4) carefully prepare well-qualified professionals who not only do but

also contemplate, comprehend, and articulately express what has been found.

The Department of Dance maintains an average of twenty to twenty-five graduate students. The program is designed to be completed in three or four semesters.

One degree is offered through the Department of Dance: Dance—MA.

Dance—MA

Note: The department is not accepting applications for the 2004–2005 academic year. Contact the graduate coordinator for more information.

COURSE DESCRIPTIONS

500R. Workshop in Dance. (1–3)

Experience with Workshop in Dance: aerobic, ballet, ballroom, folk, modern.

540R. Modern Dance Technique and Theory 5. (2)

Prerequisite: Dance 340R or equivalent.

Advanced technique, with movement combinations emphasizing dance as a performance art.

555. Dance Production. (2)

Prerequisite: Dance 355 or equivalent.

Technical and design aspects of dance production.

562R. Modern Dance Composition, Advanced. (1)

Prerequisite: Dance 362 or instructor's consent.

Development of substantive modern dance compositional works based on intent, form, and content relationships.

563R. Modern Dance Improvisation, Advanced. (1)

Prerequisite: Dance 363 or instructor's consent.

Developing advanced skills of immediate movement response to enhance nonverbal communication.

611. Introduction to Graduate Studies and Research Methods in Dance. (3)

Orientation to program requirements. Fundamental dance research methods and frameworks of analysis. Designing, analyzing, interpreting, critiquing, and reporting on dance research.

612. Master's Thesis Seminar. (1)

Prerequisite: Dance 611.

Guided direction in creation of master's thesis, emphasizing prospectus chapters.

630R. Dance Technique, Advanced. (1–2.5)

Prerequisite: instructor's consent.

Course designed for higher-level assignment and credit while attending ballet, ballroom, folk, or modern advanced technique course.

638R. Dance Performance. (1–2)

Prerequisite: instructor's consent.

Performing with a BYU dance company.

640. Creativity. (1)

Relationship of creativity to the discipline of dance.

641. Cultural Aspects of Dance. (1)

Cultural influences upon dance.

642. Contemporary Issues. (1)

Contemporary issues in dance.

643. Dance Aesthetics. (1)

Aesthetic principles and concepts as they relate specifically to dance as an art form.

650. Dance Criticism. (2)

Introduction to writings of major dance critics, issues in reviewing performances, and practice in writing reviews.

651. Dance Pedagogy. (2)

Prerequisite: undergraduate course in dance methodology or equivalent.

Nature and application of pedagogy from universal and dance perspectives.

652. Exploration of Dance Therapies. (2)

Study of concepts of and approaches in dance therapy and body therapies.

653. Movement Analysis Systems. (2)

Comparison of various systems of analyzing and recording movement. Emphasis on methods of objectifying movement to facilitate qualitative interpretation.

654. Dance and Related Fine Arts. (2)

Dance as it relates to art, literature, music, and theatre.

660. Dance Composition—Theory and Principles. (2)

Scholarly research in dance composition.

661. Dance Improvisation—Theory and Principles. (2)

Prerequisite: Dance 451 or equivalent.

Research in dance improvisation.

662. Dance Performance—Theory and Principles. (2)

Research in dance performance.

663. Dance Technique—Theory and Principles. (2)

Research in dance technique.

697R. Individual Research and Composition in Dance. (1–4)

Prerequisite: admission to graduate study in dance.

Pedagogical research, choreographic, or performance project (faculty approved and supervised). Presentation of resultant product required.

699R. Master's Thesis. (1–6)

FACULTY

ALLEN, SANDRA BIRCH, *Associate Professor*. MFA, University of Utah, 1967. Ballet; Methodology; Technique; History.

BERRETT, MARILYN, *Associate Professor*. MA, Brigham Young University, 1984. Modern Dance; Dance Education; Technique.

BLACK, CATHERINE H., *Professor*. MFA, University of Utah, 1972. Dance History; Modern Dance; Choreography; Performance; Research Methods.

DAVIS, SUSANNE, *Dance Professor*. MS, Brigham Young University, 1971. American and Folk Dance Forms; Cultural Aspects; Pedagogy; Anthropology.

DEBENHAM, PAT, *Professor*. CLMA, MA, University of California, Los Angeles, 1976. Modern Dance; Choreography; Technique; Performance; Music Dance Theatre, Laban Movement Analysis; Bartenieff Fundamentals.

GIBB, SARA LEE, *Professor*. MS, Brigham Young University, 1970. Modern Dance; Dance Education; Pedagogy; Dance and Body Therapies.

HOLMAN, CURT, *Associate Professor*. MA, Brigham Young University, 1996. Ballroom Dance; Technical Annotation of American-Style Ballroom Dance.

MUSIL, PAMELA S., *Associate Professor*. MA, Brigham Young University, 1985. Modern Dance; Dance Education; Dance Science; Technique.

PHILLIPS, REBECCA WRIGHT, *Associate Professor*. MFA, University of Utah, 1990. Modern Dance; Music Dance Theatre; Technique; Choreography; Performance.

PROHOSKY, CAROLINE, *Associate Professor*. MA, University of California, Los Angeles, 1980. Modern Dance; Choreography; Technique; Performance.

WAKEFIELD, B. LEE, *Associate Professor*. MA, Brigham Young University, 1977. Ballroom Dance Choreography; Ballroom Dance Historical Research.

WEST, COLLEEN N., *Associate Professor*. MA, Brigham Young University, 1985. Ethnic Dance Forms (Ukrainian Specialty); Ethnic Costuming; Rhythm Tap.

ECONOMICS

Chair: James B. McDonald

130 FOB
Provo, UT 84602-2363
(801) 422-2859

THE PROGRAM OF STUDIES

The Department of Economics does not offer a graduate degree but offers the following graduate courses:

COURSE DESCRIPTIONS

580. Advanced Price Theory. (3)
Prerequisite: Econ 378, 380, 382; or equivalents.

Modern theories of consumers, producers, and competitive equilibria.

581. Advanced Macroeconomics. (3)
Prerequisite: Econ 378, 380, 381, 382; or equivalents.

Theory of determining national income, employment, inflation, and interest rates. Issues of economic fluctuations, economic growth, and monetary and fiscal policy.

582. Topics in Mathematical Economics. (3)

Prerequisite: Econ 580.

Advanced topics such as risk and uncertainty, game theory, capital theory, etc.

586. Advanced Mathematics for Economists. (3)

Prerequisite: Econ 380, Math 214; or equivalents.

Advanced mathematical methods that have proved useful in economic modeling.

588. Econometrics. (3)

Prerequisite: Econ 378, 380, 381, 382, 388; or equivalents.

Theory and practice of formulating, estimating, and analyzing economic models.

599R. Academic Internship: Supervised Management and Training. (2-6)

Prerequisite: course work pertinent to proposed experience.

FACULTY

For faculty listings, refer to the BYU Undergraduate Catalog.

EDUCATIONAL LEADERSHIP AND FOUNDATIONS

Chair: E. Vance Randall

Graduate Coordinator: Steven J. Hite

306 MCKB
Provo, UT 84602-5092
(801) 422-6070

E-mail: vance_randall@byu.edu

E-mail: steve_hite@byu.edu

Internet: <http://www.edlf.byu.edu>

Fax: (801) 422-0196

THE PROGRAM OF STUDIES

Our vision is to improve life conditions and opportunities for individuals, families, and communities worldwide.

Our mission is to improve the equity and quality of teaching and learning environments throughout the world. We accomplish this mission through the integration of research, teaching, and service to strengthen educational opportunities for all people worldwide. This integrated mission is threefold:

- Explore and expand the knowledge of educational theory, policy, practice, and leadership.
- Foster the growth of educational leaders of faith and character who possess the requisite knowledge, skills, and dispositions.
- Build the capacity of individuals, families, communities, states, and nations to identify and solve education problems.

The Department of Educational Leadership and Foundations offers three degrees: Educational Leadership—MEd, Educational Leadership—EdD, and Educational Leadership—PhD.

Students may be admitted for graduate study on a part- or full-time basis.

Educational Leadership—MEd

The master of education degree program emphasizes the preparation of leaders for responsible positions in institutions concerned with educa-

tional programs, both domestic and international. Each emphasis represents an organized, streamlined program of study designed to give the student a solid theoretical, research, and practical foundation in a variety of settings.

Within the MEd degree in educational leadership and foundations are three areas of emphasis.

1. **School Leadership.** This emphasis prepares students for school leadership roles and requires an internship or a project. The school leadership emphasis consists of three program options:
 - Leadership preparation program (LPP) (licensure program)
 - Executive school leadership program (ESLP) (licensure program)
 - Educational leadership program (ELP) (nonlicensure program)
2. **Comparative and International Development Education.** This emphasis is designed to prepare graduates to assume leadership roles in education and to conduct issue- or policy-oriented research regarding the role of education in the development process, using their research findings and field experience to design or link educational programs that will contribute to economic development. The emphasis also prepares graduates for doctoral studies and eventual service in universities and ministries of education and consulting in private and nonprofit organizations and government and international agencies.
3. **Education Policy and Social Foundations.** The master of education degree in education policy and social foundations is intended for educators and educator researchers seeking careers in education policy, either in the private or public sector, that do not require administrative licensure. A thesis or project is required. Students may pursue studies in the areas of sociology,

philosophy, policy, or religious education.

Admission and Entry.

- Application deadlines: February 15 of the year in which enrollment is desired (LPP applicants: December 1).
- Application requirements: minimum 3.0 GPA for last 60 semester hours.
- Entrance examinations: GRE or LSAT; for international applicants, TOEFL. (A TOEFL score of 550 or higher is required.)
- Prerequisite: baccalaureate degree and minimum one year's professional experience.
- Semesters of entry: summer. (LPP begins spring.)

Requirements for Degree.

- Credit hours: minimum 36.
- Required courses: consult program announcement available in department office.
- Study list: to be submitted by end of first semester.
- Credit limitations: EdLF 515R or extension credit will not be counted toward a degree program.
- Comprehensive examination: required upon completion of course requirements.
- Thesis or Project: optional.

Requirements for Minimum

Registration. Following admission to the MEd program, students will be expected to work continuously toward completion of all requirements for the degree. The university requires that students complete at least 6 semester hours of approved program credit during each academic year (September 1 to August 31). Students are permitted five years to complete the degree program and graduate.

Requirements for Administrative/Supervisory Endorsement in Addition to Master's Degree. To become a school site administrator, and for certain district office positions in Utah, the administrative/supervisory license is required. The administrative/supervisory license, which is an endorsement to the teaching certificate, requires prior

teaching experience and the completion of courses and credits beyond the 36 hours for the master's degree. Students wishing to receive the endorsement must have prior approval.

Educational Leadership—EdD

The doctor of education degree (EdD) is intended to serve students whose career path is leadership in U.S. public schools. Admission to the EdD program is reserved for individuals who have already demonstrated some record of leadership in the public schools, i.e., principal, assistant principal, coordinator, or district level official. To enter the program the student must demonstrate scholarly competence, engage in self-directed inquiry, and demonstrate the ability to conduct and report educational research. The program emphasizes a thoughtful approach to advanced study in educational leadership. (In general, the EdD program emphasizes the application of theory to educational settings.)

The EdD degree program has four key elements:

1. Program course work—the knowledge base required for good leadership and analysis in contemporary educational settings through doctoral core and specialization elective courses.
2. Integrative seminar—a capstone experience to integrate and synthesize ideas learned from courses and educational experiences in the doctoral program.
3. Comprehensive examination—a demonstration of the ability to integrate and synthesize ideas learned from program course work.
4. Dissertation—the use of theory and research to address problems related to educational policies and practices, with the specific aim of applying theory to practice.

Admission and Entry.

- Semesters of entry and application deadlines: all application materials must be completed and on file in

the Office of Graduate Studies by January 15 of each year to be considered for admission to graduate study the coming summer term.

- Doctoral applicants should contact the department secretary no later than November 15 of the year preceding intended entry to obtain materials specific to application procedures and deadlines.
- Doctoral students enter the university to begin study only in the summer term of each year.
- Required entrance examinations: the GRE, GMAT, or LSAT; and, for international applicants, TOEFL. The department may require additional examinations.
- Prerequisite: master's degree or equivalent; minimum of two years' professional experience in a leadership position related to education.

Requirements for Degree.

- Credit hours (60): minimum 48 course work hours plus 12 hours of dissertation (EdLF 799R).
- Required core courses: see program announcement available in department office.
- Study list: submit by the end of the first semester.
- Credit limitations: EdLF 515R or extension credit will not be counted toward a degree program.
- Residence: two consecutive semesters (at least 6 hours each) on the BYU Provo campus.
- Examinations: (A) comprehensive examination of course work, (B) oral presentation of dissertation.
- Dissertation: a rigorous, independent, guided research project. The EdD dissertation (12 credit hours) may not be undertaken until all course work has been completed, the comprehensive examination has been passed, and the student is enrolled in EdLF 795. The dissertation is different from course work per se; therefore, performance on the dissertation may not correlate with performance in individual courses.

Minimum Registration. Following admission to the doctoral program, students will be expected to work continuously toward completion of all requirements for the degree. The

university requires that students complete at least 6 hours of approved program credit during each academic year (September 1 to August 31). Students are permitted eight years in which to complete the degree program and graduate.

Educational Leadership—PhD

The doctor of philosophy degree (PhD) requires the student to demonstrate scholarly competence, engage in self-directed inquiry, and demonstrate the ability to conduct and report educational research. The program emphasizes a rigorous approach to advanced study in educational leadership. (In general, the PhD program examines educational issues from a larger, global context and with an extensive theoretical framework.)

The PhD degree program has five elements:

1. Program course work—the knowledge base required for good leadership and analysis in contemporary educational settings through doctoral core and specialization elective courses.
2. Professional internships—three internship activities to develop future professional skills: off-site internship, graduate research assistantship, and graduate teaching assistantship.
3. Integrative seminar—a capstone experience to integrate and synthesize ideas learned from courses and educational experiences in the doctoral program.
4. Comprehensive examination—a demonstration of the ability to integrate and synthesize ideas learned from program course work.
5. Dissertation—the use of theory and research to address problems related to educational policies and practices, with the specific aim of furthering knowledge of the educational field.

Admission and Entry.

- Semesters of entry and application deadlines: all application materials must be completed and on file in the Office of Graduate Studies by

January 15 of each year to be considered for admission to graduate study the coming summer term.

- Doctoral applicants must contact the department secretary no later than November 15 of the year preceding intended entry to obtain materials specific to application procedures and deadlines.
- Doctoral students enter the university to begin study only in the summer term of each year.
- Required entrance examinations: the GRE, GMAT, or LSAT; and, for international applicants, TOEFL. The department may require additional examinations.
- Prerequisite: master's degree or equivalent; minimum of three years' professional experience in leadership and/or administration consistent with intended area of study.

Requirements for Degree.

- Credit hours (66): minimum 48 hours plus 18 hours of dissertation credit (EdLF 799R).
- Required core courses: see program announcement available in department office.
- Study list: submit by the end of the first semester.
- Credit limitations: EdLF 515R or extension courses will not be counted toward degree programs.
- Residence: at least one full year on the BYU Provo campus.
- Examinations: (A) comprehensive examination of course work (B) oral presentation of dissertation.
- Dissertation: a rigorous, independent, guided research project. The dissertation (18 credit hours) presumes advanced research expertise and may not be undertaken until all course work has been completed, the comprehensive examination has been passed, and the student is enrolled in EdLF 795. The dissertation is different from course work per se; therefore, performance on the dissertation may not correlate with performance in individual courses.

Minimum Registration. Following admission to the doctoral program, students will be expected to work continuously toward completion of

all requirements for the degree. The university requires that students complete at least 6 hours of approved program credit during each academic year (September 1 to August 31). Students are permitted eight years in which to complete the degree program and graduate.

Joint Degrees

The department and the Law School have established the joint JD degree and either a master of education or a doctor of education.

FINANCIAL ASSISTANCE

Research Assistantships. A limited number of research assistantships are available for full-time students. These assignments involve working with selected faculty members on a ten- to twenty-hour-per-week basis. Assistantships are given for a one-year period only but may be extended following a review of student performance.

Tuition Scholarships. Scholarships are available on a limited basis. Students receiving assistantships are not normally given tuition scholarships. Tuition aid is given on the basis of need, and applications should be received in the department by May of each year for consideration for the following summer term and academic school year.

Scholarships. Several modest scholarships are also available. Contact the department for application forms and additional information about these opportunities.

RESOURCES AND OPPORTUNITIES

Computer Laboratory. Computer terminals in the laboratory provide graduate students direct line access to the university's large mainframe computers, enabling students to use several sophisticated programs, such as SPSS and SAS, to analyze research data. These terminals also enable students to search out books and other materials in the Harold B. Lee Library.

Graduate Student Project and Research Laboratory. Laboratory space is provided for graduate students who are working with faculty on research, evaluation, and development projects.

Study Areas. Graduate study areas are available in the McKay Teaching and Learning Center.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

Note: EdLF 515R is for teacher certification purposes only and is listed in the BYU Undergraduate Catalog.

530. School and Community Programs in Education. (2)

Examination of programs in school and community for enhancement of teaching and learning.

600. Personal and Group Leadership in Education. (3)

Theoretical foundations of leadership and organizational behavior, specifically applied at the micro level to individuals and groups within educational organizations.

602. Organization and Strategic Leadership in Education. (3)

Prerequisite: EdLF 600.

Theoretical foundations of leadership, organizational theory, strategy, and change, specifically applied at the macro level to educational organizations and their environments.

609. The School Principal. (3)

Work of the principal in public schools: instructional leadership, personnel relationships, supervision, and administration.

610. Human Resource Administration in Education. (2)

Introduction to human resource management policy and practice in education organizations, including job analysis and design, recruitment, selection, supervision, and evaluation.

614. Education of Diverse Populations. (3)

Multicultural issues in educational theory and practice, with special reference to race, ethnicity, gender, socioeconomic status, and various types of exceptionality.

617. Professional and Scholarly Communication in Education. (3)

Developing and refining skills in written and oral communication. Analytical, critical, and persuasive writing; speaking, presenting, and collaborative problem solving.

620. Educational Finance. (3)

Theory, principles, and general practices of public school finances; equalization and finance problems.

621. Economics of Education. (3)

Main concepts that apply economic thinking to education. Overview of literature on the efficiency and effectiveness of educational policies on education outcomes.

622. The Law and Education. (3)

Evolution of American law and its application to American educational systems. Fundamental sources and principles of the law, the judicial structure, and key court cases affecting education at the state and federal levels.

629. Instructional Leadership in Schools. (3)

Developmental approaches to instructional leadership, emphasizing problems of supervision and designing and implementing school improvement programs.

631. The Curriculum: Theory and Practice. (3)

Theory and practice of curriculum in its various psychological, social, historical, and philosophical contexts.

632R. Field Practicum. (2-6)

Working with a school administrator as a supervised intern (6 hours required for administrative certificate; 2 hours required for MED degree).

634R. Doctoral Internship. (1–6)

Prerequisite: EdLF 610, 612, 628.

Practical experience in state office, local school districts, higher education, and other agencies.

635R. Internship Seminar. (1–3)

School administrative internship seminar. Practices, concepts, and theories of school administration.

640. Quantitative Reasoning 1. (3)

Statistical reasoning, logic systems, and methodology.

641. Quantitative Reasoning 2. (3)

Prerequisite: EdLF 640.

Use of analysis of variance, analysis of covariance, and multiple regression/correlation in analyzing research in education.

645. Quantitative Methods in Education Research. (3)

Prerequisite: EdLF 640, 641, 672.

Reasoning and methods used in quantitative research, with a major focus on survey research techniques.

646. Qualitative Methods in Education Research. (3)

Prerequisite: EdLF 672.

Reasoning and methods used in qualitative research.

650. Education Policy. (3)

Introduction to development and evaluation of educational policy in such domains as governance, resource allocation, productivity, assessment, and curriculum.

655. Social History of American Education. (3)

Interpretative study of major ideas, values, and practices that influenced development of American education within broader social, political, cultural, and economic context.

656. Best Practices in American Education. (2)

Ideas, organizational arrangements, policies, and practices judged highly effective, especially in promoting student learning outcomes. Includes visits to local schools.

657. Language, Policy, and Education. (3)

Comparative policy approaches to language of instruction issues in international and U.S. settings, including fundamental sources of policy, from law to international declarations of rights; critical overview of second language acquisition theory.

658. Political Aspects of Education. (3)

Understanding processes and institutions in building support for education; associated issues.

660. Education and Social Change. (3)

Educational development and a theoretical study of social change. Topics include secularization, industrialization and education, structural differentiation, and the role of the state in social change.

661. Education and International Development. (3)

Fundamentals of international development, with exposure to major theorists and development paradigms and to modern-day practice of development by bilateral and multilateral aid agencies and non-governmental organizations.

662. Comparative and International Development Education. (3)

Substance and methods of comparative and international development education. How comparisons between systems have implicit in them a theory of comparisons of politics and economics. The role of multilateral aid agencies in influencing the development of schooling.

663. Education, Culture, and Economic Development. (3)

Links between education and various aspects of social and economic development. Topics include human capital formation, the issues of education reform, and rates and return to education in the Third World.

665. Evaluation and Assessment of School Programs. (3)

Nature, purpose, and function of evaluating educational programs.

668. Philosophical Foundations of Western Education. (3)

Major philosophies of education and their influence on educational theory and practice.

670R. Seminar in Education. (1–3)

Selected topics and issues in education as announced in the current class schedule.

671R. Seminar in Comparative International Development Education. (1–3)

Topics in comparative education, development education, sociology and economics of education, and system reform in poor countries.

672. Research Methods. (3)

Prerequisite: EdLF 640.

Techniques of research in educational settings.

674. Business Administration and Technology Applications in Education. (2)

Organizing and managing business affairs in educational institutions. Business and instructional applications of technology in education.

677. Quantitative Data Analysis: SPSS. (3)

Prerequisite: EdLF 640 or equivalent; EdLF 672.

Integration of statistics and quantitative research design and analysis with the use of social science statistical software (SPSS).

678. Qualitative Data Analysis. (3)

Prerequisite: EdLF 646.

Integration of qualitative research design and analysis with the use of social science qualitative software (NVIVO).

686. Professional Negotiations. (2)

694R. Independent Study. (1–3)

Prerequisite: departmental consent if more than one registration desired.

Study experience in an area of specialization under direction of a faculty member.

695R. Independent Research. (1-3)
Prerequisite: instructor's consent;
departmental consent if more than
one registration desired.

Individual research study or project under the direction of a faculty member.

698R. Master's Project. (1-6)
Prerequisite: departmental consent.

699R. Master's Thesis. (1-6)
Prerequisite: committee chair's consent.

700. Organizational Leadership and Theory. (3)
Prerequisite: EdLF 600, 602; or equivalents.

Theory of leadership, organizational behavior, and organization theory and strategy in education contexts, emphasizing theory development, synthesis, and review of current research literature.

720. Normative Aspects of Education Policy. (3)
Prerequisite: EdLF 658, 668.

Normative dimension inherent in education policy.

762. History of Higher Education. (3)

Historical review of challenges facing higher educational administration in today's colleges and universities.

775. Educational Research: Theory and Methodology. (3)
Prerequisite: EdLF 640, 672; or equivalents.

Exploration of the history, theory, and methodology of research in education.

776. Contemporary Approaches to Educational Research. (3)
Prerequisite: EdLF 672 or equivalent; 775.

Exploration of the paradigms and approaches to contemporary educational research.

780. Economic Issues in Educational Leadership. (3)

Economic benefits of education to country's economy; why education is considered an investment in human capital. Equity and equality of funding education.

782. Constitutional Law and Education. (3)
Prerequisite: EdLF 622 or instructor's consent.

Impact of Constitution on education in America; cases under constitutional law that have influenced policy and practice in the educational system.

788R. Doctoral Practicum. (1-3)
Designing and implementing on-site research. Development of doctoral prospectus under direction of a faculty member.

791R. Doctoral Seminar. (1-6)
Prerequisite: departmental consent.

792. Research Topics and Issues in International Comparative Education. (3)

Research topics and issues on histories, philosophies, and practices of international educational systems.

795. Research and Reporting Techniques for Doctoral Dissertation. (3)

Research designs for planning and conducting research for doctoral dissertation using survey, inferential, and experimental methods.

799R. Dissertation. (1-18)
Prerequisite: EdLF 795.

FACULTY

BAUGH, STEVEN C., Associate Professor. EdD, Brigham Young University, 1978. Leadership; Educational Administration; Human Resource.

FERRIN, SCOTT E., Associate Professor. JD, Brigham Young University, 1984; EdD, Harvard University, 1996. School Law; Policy; Politics; Language Policy.

GEO-JAJA, MACLEANS A., Associate Professor. PhD, University of Utah, 1986. International Development Education; Global Economic Restructuring; Human Development in Africa; Economics of Education.

HILTON, STERLING C., Associate Professor. PhD, Johns Hopkins University, 1996. Longitudinal Data Analysis; Structural Equation Modeling; Statistics Education.

HITE, JULIE M., Assistant Professor. PhD, University of Utah, 1999. Leadership; Organizational Behavior Theory; Strategy and Networks.

HITE, STEVEN J., Professor. EdD, Harvard University, 1985. Research Theory and Methodology.

HOLSINGER, DONALD B., Professor. PhD, Stanford University, 1972. Comparative and International Development Education; Sociology of Education; Development Studies.

MATTHEWS, L. JOSEPH, Associate Professor. EdD, Brigham Young University, 1987. Leadership; Educational Administration; Principalship.

MAYES, CLIFFORD T., Associate Professor. PhD, University of Utah, 1997. Cultural Foundations; Sociology of Education; Curriculum Theory.

RANDALL, E. VANCE, Professor. PhD, Cornell University, 1989. Educational Administration; Social Philosophy; Education Policy.

RICHARDS, A. LEGRAND, Associate Professor. PhD, Brigham Young University, 1982. Philosophy; Foundations.

WILLIAMS, ELLEN J., Associate Professor. EdD, Brigham Young University, 1990. Instructional Leadership; Educational Administration; Nurturing Organizational Knowledge.

ELECTRICAL AND COMPUTER ENGINEERING

Chair: Richard L. Frost
Graduate Coordinator: Lee Swindlehurst

459 CB
Provo, UT 84602-4099
(801) 422-4012
E-mail: grad@ee.byu.edu

THE PROGRAM OF STUDIES

Electrical engineering has its origins in the study and application of electrical phenomena. However, in recent years the field has grown to embrace a diverse range of problems in applied physics and mathematics. The department currently offers advanced study in four broad areas.

- *Computer Engineering* concentrates on the architecture and implementation of digital logic and computing systems.
- *Electromagnetics* explores the theory, physical properties, and applications of electromagnetic radiation and includes emphases in optics, remote sensing, numerical computation, and microwave systems.
- *Microelectronics and VLSI* focuses on the design and fabrication of micro-electronic circuits for digital and analog applications, including device physics, modeling, processing, and fabrication.
- *Signals and Systems* studies fundamental and applied issues in information processing and includes emphases in communication theory, linear and nonlinear control systems, digital signal processing, and estimation theory.

Specific research activities in these broad areas are described on the department Web page at <http://www.ee.byu.edu>.

Two degrees are offered through the department: Electrical Engineering—MS and Electrical Engineering—PhD.

Admission and Entry.

All degree programs have the same admission and entry requirements.

- Semesters of entry and application deadlines: fall, February 15; winter, September 15.
- Application requirements: complete BYU Application for Admission to Graduate Study forms and GRE general exam (for all applicants with BS degree from non-ABET- accredited program).
- Prerequisites: BS degree in electrical or computer engineering or allied discipline. Minimum 3.0 GPA for last 60 credit hours of course work.

Electrical Engineering—MS

The MS degree concentrates on establishing a sound theoretical foundation and on exposing students to advanced developments. The critical thinking and high level of mathematical and algorithmic facility required by the abstract nature of graduate courses allows the MS graduate to assume responsibility and supervision beyond that normally given a BS engineer. MS students study in one of the four broad areas while pursuing either the course work or thesis option. The breadth of the course work degree provides professional leadership necessary to remain current in this rapidly changing field. The focus of the thesis degree develops the research and design tools necessary to participate in the leading edge developments in the discipline. The MS degree typically takes from one to two years to complete.

Requirements for Degree (Course Work Option).

- Credit hours: 30
- Required courses: 9 credit hours from one of the four emphasis areas and 6 credit hours from any of the other three emphasis areas.
- Study list: submitted during first semester of graduate study.

Requirements for Degree (Thesis Option)

- Credit hours: 30.
- Required courses: 9 credit hours from one of the four emphasis

areas and 3 credit hours from one of the other three emphasis areas; 6 credit hours of ECEn 699R.

- Study list: submitted during first semester of graduate study.
- Thesis.
- Final oral examination consisting of public presentation of original research described in thesis.

Engineering Management—Minor

Offered to MS students in the College of Engineering and Technology, the engineering management minor provides a way to include some elements of modern management in a technical graduate program.

Requirements.

- The minor requires 9 hours. Mgt 501 and 511 are required courses. The other 3 hours are selected from Mgt 541, MBA 679 and 650, MPA 615, 622, 675, 676, OrgB 610, or approved Marriott School of Management courses. Students should carefully plan how they will meet the requirements of the minor since these courses are taught only once a year.
- This minor should be declared as part of a student's graduate study list. Admittance approval to enroll in class will be derived from approved graduate study lists.

Electrical Engineering—PhD

The engineering PhD student collaborates with a faculty advisor on a topic that may have a lasting influence on theoretical understanding or on professional practice. Although courses on advanced topics in one of the four areas of emphasis are taken, the PhD is primarily a research experience that requires an ability to identify, investigate, formulate, and solve new problems of interest. The results of this exercise are reported in a dissertation and in the research literature. Careers for PhD graduates are characterized by the expectation to act with considerable independence and to assume major responsibilities. The PhD graduate is prepared for a wide range of career

choices in industry, government agencies, and academia.

Requirements for Degree.

- Credit hours (54): 36 hours of course work beyond the baccalaureate degree plus 18 hours of dissertation (ECEn 799R).
- Required courses: 36 credit hours of graduate course work as specified by the advisory committee; ECEn 799R.
- Study list: submitted during first year of graduate study.
- Written qualifying exam: completed by end of second year.
- Oral comprehensive exam: completed by end of third year.
- Advancement to candidacy.
- Dissertation.
- Final oral examination consisting of public presentation of original research described in dissertation.

FINANCIAL ASSISTANCE

The department provides as much financial assistance to graduate students as is available within departmental and university guidelines. All applicants are considered for financial aid; no special application form is required. More information may be obtained from the department. The following types of financial assistance are available to students who qualify:

Tuition Scholarships. The department offers a limited number of full and partial-tuition scholarships on a competitive basis. All graduate students in good standing may apply for these scholarships.

Teaching / Research Assistantships. A limited number of teaching / research assistantships are awarded to full-time graduate students in good standing. These assistantships are renewable annual appointments that require the student to serve as a teaching assistant for two semesters and provide matching research funds in addition to tuition benefits. Students must commit to a research-oriented graduate program to qualify.

Research Assistantships. Full-time graduate students in good standing may be awarded research assistant-

ships to assist faculty with externally funded research. Arrangements must be made with individual faculty members.

Fellowships. The department awards a limited number of research fellowships on a competitive basis to full-time graduate students in good standing.

RESOURCES AND OPPORTUNITIES

The department maintains a variety of facilities to support the diverse research efforts of the graduate faculty. Facilities include:

- Extensive PC and Unix workstation computer resources.
- Digital signal processing laboratory that includes a variety of software tools, image display and digitizing equipment, and audio processing equipment.
- Well-equipped clean-room to support research in semiconductor and electro-optic fabrication.
- Microwave remote sensing and integrated systems laboratories.
- Electro-optics laboratory that includes lasers and fiber optic research equipment.
- Antenna range.
- Reconfigurable logic laboratory.
- Telemetry laboratory to support research in digital communications and error control coding.
- Control laboratory to support research in nonlinear control systems.

For a description of current research activities associated with each facility, see the department Web page at <http://www.ee.byu.edu>.

COURSE DESCRIPTIONS

522R. Special Topics in Computer Systems. (1-3)

Prerequisite: instructor's consent.

523. Queuing Theory and Modeling Fundamentals. (3)

Prerequisite: ECEn 380 or concurrent registration; Stat 421.

Computer systems and network modeling using stochastic processes: queuing theory models, performance analysis, resource allocations, large-system response parameters.

524. Advanced Digital Systems. (3)

Prerequisite: ECEn 451; proficiency in C or C++.

Advanced synchronous systems design, CAD and HDL's, systolic arrays, high-speed, low-power digital circuit architectures.

526. Computer Internetworking. (3)

Prerequisite: ECEn 427 or equivalent.

Basics of computer networking, legacy and modern LANS, switches/routers, voice/data/video communications, lab experience with network routers and switches, performance evaluation.

528. Advanced Computer Architecture. (3)

Prerequisite: ECEn 428 or equivalent.

Lab experience with hardware and software techniques for exploiting instruction-level parallelism.

541. Active and Passive Filter Design. (3)

Prerequisite: ECEn 313, 380; or equivalents.

Design methods for electronic filters based on passive components, active components, and integrated circuit components.

542R. Special Topics in Electronics. (1-3)

Prerequisite: instructor's consent.

543. CMOS Amplifier Design. (3)

Prerequisite: ECEn 443 or 445 or equivalent.

Factors affecting performance of CMOS devices in analog applications. Design of CMOS amplifiers, buffers, and comparators.

548. Analog CMOS Circuit Design. (3)

Prerequisite: ECEn 443 or 445 or equivalent.

Design of CMOS comparators, wideband amplifiers, bandgap references; multipliers, PTAT generators, charge-transfer amplifiers, chopper-stabilized amplifiers, and advanced D/A and A/D CMOS architectures.

549. VLSI Communication Circuit Design. (3)

Prerequisite: ECEn 443 or 445 or equivalent.

Frequency synthesizers; low-jitter, voltage-controlled oscillators; high Q circuits; clock regeneration; phase-locked loops; frequency discriminators; and radio-on-a-chip concepts.

550. Microelectromechanical Systems (MEMS). (3)

Prerequisite: ECEn 450 or MeEn 372 or equivalent.

Design, fabrication, and applications of microelectromechanical systems (MEMS). Mechanical properties governing design and reliability of MEMS and the processing technologies used to fabricate them.

551. VLSI Systems Design. (3)

Prerequisite: ECEn 451.

Design of structured circuit systems for very large-scale integrated semiconductor chips. Architecture of digital VLSI systems.

553. VLSI Process Technology. (3)

Prerequisite: senior or graduate standing in engineering or physical sciences.

Physical and chemical process steps used in fabricating very large-scale integrated circuits on monolithic silicon crystal.

560. Electromagnetic Wave Theory. (3)

Prerequisite: ECEn 460 or equivalent.

Principles and methods of modern electromagnetic wave theory: anisotropic media, dyadic Green functions, Huygen's principle, contour integration methods, asymptotic integration. Applications in radiation and scattering.

561. High-Frequency Communication Circuits. (4)

Prerequisite: ECEn 443, 460.

Circuits and RF techniques used in communication systems.

562. Optical Communication Components and Systems. (3)

Prerequisite: ECEn 460 or equivalent.

Fiber-optic communication system components and their operating and performance characteristics.

563. Applied Computational Electromagnetics. (3)

Prerequisite: ECEn 460 or equivalent.

Current theory and practice in numerically solving Maxwell's equations for antenna and circuit design and radar-scattering prediction.

564. Radar and Communication Systems. (3)

Prerequisite: ECEn 460, 485; or equivalents.

Design and performance of radar and communication systems: radar equation ambiguity functions, modulation, signal detection, link budgets, spread spectrum, system design, and performance trade-offs.

568. Microwave Remote Sensing. (3)

Prerequisite: instructor's consent.

Emphasis on space-borne remote sensing of earth's atmosphere, land, and oceans. Primary methods and applications for both active (radar) and passive (radiometry).

580. Stochastic Processes. (3)

Prerequisite: ECEn 380 or equivalent; Stat 421 or equivalent; graduate standing or instructor's consent.

Review of elementary probability, introduction to random processes: definitions, properties, covariance, spectral density, time average, stationarity, ergodicity, linear system relations, mean square estimation, Markov processes.

581. Detection and Estimation Theory. (3)

Prerequisite: ECEn 580; Stat 421 or equivalent; graduate standing or instructor's consent.

Sufficiency, completeness; Neyman-Pearson and Bayes detector; maximum likelihood, Bayes, minimum mean square, and linear estimation; Kalman filters; selected topics.

582. Mathematics of Signals and Systems. (3)

Prerequisite: ECEn 380, Math 343 (or equivalents); graduate standing or instructor's consent.

Introduction to mathematics of signal processing, communication, and control theory; linear spaces, Eigenvalue and singular value decompositions, quadratic forms, linear operators, adjoints, dual spaces.

588. Digital Image Processing. (3)

Prerequisite: ECEn 487, 580; graduate standing or instructor's consent.

Digital processing theory and techniques for two-dimensional image analysis, enhancement, restoration, data compression, and reconstruction from projections.

621. Computer Arithmetic. (3)

Prerequisite: ECEn 524.

Fundamental principles and development of algorithms for performing arithmetic on digital computers and application-specific processors.

624. Regular Array Architectures. (3)

Prerequisite: ECEn 524.

Theory, design, and applications of regular array architectures and systolic arrays.

625. Compilation Strategies for High-Performance Systems. (3)

Prerequisite: ECEn 524.

Compilation and synthesis strategies for high-performance hardware/software systems.

629. Reconfigurable Computing Systems. (3)

Prerequisite: ECEn 524.

Introduction to FPGA devices, lab experience developing FPGA-based configurable systems.

648. Advanced Mixed-Signal Circuit Design. (3)

Prerequisite: ECEn 548.

New converter architectures, advanced measurement and characterization techniques, low-noise timing circuits, VLSI layout and package considerations, bond wire inductance, and wireless applications.

662R. Special Topics in Electromagnetics. (1-3)

Prerequisite: graduate standing or instructor's consent.

680. Information Theory. (3)

Prerequisite: Stat 421 or equivalent.

Mathematical development of information theory applied to data communications and coding. Topics include entropy, mutual information, channel capacity, data compression, rate distortion theory, etc.

681. Inverse Problems. (3)

Inverse problem theory and solution including statistical, deterministic, linear, and nonlinear techniques: Landweber conjugate-gradient, POCS, Backus-Gilbert, maximum-entropy, Lucy-Richardson; Radon transforms; inverse scattering; medical imaging.

682R. Special Topics in Signals and Systems. (1-3)

Prerequisite: graduate standing or instructor's consent.

683. (ECEn-MeEn 631) Linear System Theory. (3)

Prerequisite: ECEn 483, 582.

Mathematical introduction to time-varying linear systems; state space descriptions, controllability, observability, Lyapunov stability, observer-based control. Design of linear quadratic regulators and infinite-horizon Kalman filters.

684. Nonlinear System Theory. (3)

Prerequisite: ECEn 582.

Mathematical introduction to nonlinear dynamic systems. Topics include Lyapunov methods, passivity, input-output stability, and nonlinear feedback design.

685. Error-Control Coding. (3)

Prerequisite: graduate standing or instructor's consent.

Theory and implementation of block and convolutional codes for error control in digital communications and computer applications. Cyclic codes, CRCs, BCH, Reed-Solomon, Viterbi algorithm.

687. Digital Signal Processing. (3)

Prerequisite: ECEn 487, 580, 582; graduate standing or instructor's consent.

Advanced theory and applications including optimal statistical processing, adaptive processing, and array processing methods.

699R. Master's Thesis. (1-9)

Prerequisite: graduate standing and major professor's consent.

797R. Research for Doctoral Students. (1-9)**799R. Doctoral Dissertation. (1-9)****FACULTY****ARCHIBALD, JAMES K.**, *Associate Professor*. PhD, University of Washington, 1987. Robotics; Embedded Systems.**BEARD, RANDAL**, *Associate Professor*. PhD, Rensselaer Polytechnic Institute, 1995. Nonlinear System Theory; Control Theory.**CHABRIES, DOUGLAS M.**, *Professor*. PhD, Brown University, 1970. Digital Signal Processing; Adaptive Filtering; Image and Sonar Processing.**CHRISTIANSEN, RICHARD**, *Professor*. PhD, University of Utah, 1976. Digital Signal Processing.**COMER, DAVID JOHN**, *Professor*. PhD, Washington State University, 1966. Electronics; Circuit Theory.**COMER, DONALD T.**, *Professor*. PhD, University of Santa Clara, 1968. Microelectronics; Mixed Signal VLSI.**FROST, RICHARD L.**, *Associate Professor*. PhD, University of Utah, 1979. Digital Signal Processing; Information Theory; Image Processing; Neural Networks.**HAWKINS, AARON R.**, *Associate Professor*. PhD, University of California, Santa Barbara, 1998. Solid-State Device Physics; Semiconductor Processing; Optoelectronics and Photonics; Materials Integration.**HUTCHINGS, BRAD L.**, *Professor*. PhD, University of Utah, 1992. Reconfigurable Logic; FPGA's VLSI Design.**JEFFS, BRIAN D.**, *Associate Professor*. PhD, University of Southern California, 1989. Digital Signal Processing; Digital Image Processing; Biomedical Imaging.**JENSEN, MICHAEL**, *Associate Professor*. PhD, University of California, Los Angeles, 1994. Wireless Communications; High-Frequency Circuits; Microwave Remote Sensing.**LEE, D. J.**, *Associate Professor*. PhD, Texas Tech University, 1990. Machine Vision; Image Processing; Embedded Systems.**LONG, DAVID G.**, *Professor*. PhD, University of Southern California, 1989. Microwave Remote Sensing; Estimation Theory; Radar.**MANWARING, MARK L.**, *Professor*. PhD, Utah State University, 1979. Digital System Design; Embedded Systems; VLSI; Application to Medical Devices.**NELSON, BRENT E.**, *Professor*. PhD, University of Utah, 1984. VLSI Design; Computer Systems Design.**OLIPHANT, TRAVIS**, *Assistant Professor*. PhD, Mayo Foundation, 2001. Biomedical Measurement and Imaging; Inverse Problems; Estimation Theory; Electromagnetics.**PETRIE, CRAIG**, *Assistant Professor*. PhD, Georgia Institute of Technology, 1997. Analog and Mixed-Signal Circuits.

RICE, MICHAEL, *Associate Professor.*

PhD, Georgia Institute of Technology, 1991. Digital Communication Theory; Error-Control Coding; Software Radios.

SCHULTZ, STEPHEN M., *Assistant*

Professor. PhD, Georgia Institute of Technology, 1999. Fiber Optics; Integrated Optics; Diffractive Optics.

SELFIDGE, RICHARD H., *Associate*

Professor. PhD, University of California, Davis, 1984. Fiber and Integrated Optics; Electromagnetics; Lasers.

SMITH, SAMUEL M., *Research Professor.*

PhD, Brigham Young University, 1991. Intelligent Control; Autonomous Robotics; Networked Automation Systems; Fuzzy Logic; Systems Design.

STIRLING, WYNN C., *Professor.* PhD,

Stanford University, 1983. Linear System Theory; Estimation and Detection Theory; Control Theory.

SWINDLEHURST, ARNOLD LEE,

Professor. PhD, Stanford University, 1991. Estimation Theory; Signal Processing; Antenna Arrays; Wireless Communications; Radar.

WARNICK, KARL, *Assistant Professor.*

PhD, Brigham Young University, 1997. Electromagnetics; Scattering Theory; Numerical Analysis.

WILDE, DORAN, *Associate Professor.*

PhD, Oregon State University, 1995. Regular Array Architectures; Computation.

WIRTHLIN, MICHAEL, *Assistant*

Professor. PhD, Brigham Young University, 1997. Computer System Design and Performance.

ENGINEERING MANAGEMENT

Engineering Management—Minor

Offered to MS students in the College of Engineering and Technology, the engineering management minor provides a way to include some elements of modern management in a technical graduate program.

Requirements

- The minor requires 9 hours. Mgt 501 and 511 are required courses. The other 3 hours are selected from Mgt 541, MBA 679 and 650, MPA 615, 622, 675, 676, OrgB 699R, or approved Marriott School of Management courses. Students should carefully plan how they will meet the requirements of the minor since these courses are taught only once a year.
- This minor should be declared as part of a student's graduate study list. Admittance approval to enroll in class will be derived from the student's approved graduate study list.

Following are course descriptions.

COURSE DESCRIPTIONS

Mgt 501. Managerial Accounting. (3)

Nature, objectives, and procedures of cost accounting. Topics include job costing, joint product costing, cost behavior analysis, standard costs, problems of cost allocation, and uses of cost data in decision making.

Mgt 511. Managerial Finance. (3)

Financing problems facing a business: managing working capital and long-term assets; financing capital requirements in the short and long term; techniques of financial analysis and planning; identifying and valuating cash flows; cost of capital; capital budgeting, structure, and markets; raising corporate capital.

Mgt 541. Marketing Management. (3)

Development of analytical marketing tools and techniques and their utilization in case analysis and decision making in marketing management.

ENGLISH

Chair: Edward A. Geary

Graduate Coordinator: Lance E. Larsen

3110 JKHB

Provo, UT 84602-6280

(801) 422-8673

THE PROGRAM OF STUDIES

The English Department, as a part of the College of Humanities, offers graduate study devoted to the development of reading, writing, and thinking abilities derived from studying and producing literary and other texts in English. Students study these works in aesthetic, historical, religious, and other contexts, including the theoretical contexts the faculty bring to the courses they teach. This program makes intensive use of the library and its resources.

The English MA program enables students to develop knowledge, skills, and attitudes that have application in contemporary society and that are in harmony with the principles of the restored gospel of Jesus Christ.

The program may appeal to students who plan to enter such careers as teaching, editing, and writing; to those who seek an advanced liberal arts degree for preparation in library science or public service; to those who plan to go on for a doctorate in English or a related area; and to those who wish to continue studies for personal satisfaction.

One degree is offered through the Department of English: English—MA.

Each year there are approximately 100 students in the English MA program. The average duration for the degree is two years.

English—MA

The MA degree in English offers course work beyond the bachelor's degree in three areas of emphasis:

Literature, Rhetoric, and Creative Writing.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15 (U.S. and international).
- Application requirements: application, including writing sample.
- Entrance examination: GRE general exam is required. (GRE advanced literature subject test is optional.)
- Prerequisite: undergraduate major or its equivalent, one course in literary criticism (Engl 451 or 452 or equivalent), and reading knowledge of one foreign language.

Requirements for

Degree—Literature Emphasis.

- Credit hours: 32 minimum, consisting of 26 course work hours plus 6 thesis hours (Engl 699R).
- Introductory course (2 hours): Engl 600.
- Required courses (15 hours): Engl 630 or 650; four additional courses in a coherent plan of study from British literature, American literature, other literatures in English, folklore, or literary theory and criticism.
- Breadth requirement (3 hours): one course in rhetoric, critical theory, or foreign language literature (other than Engl 610).
- Electives (6 hours): two courses.
- Thesis: 6 hours of 699R on a topic demanding research, analysis, interpretation, and theoretical or methodological expertise.
- Examination: oral examination on thesis, related course work in emphasis, and an approved reading list of writers or topics.

Requirements for Degree—Rhetoric Emphasis.

- Credit hours: 32 minimum, consisting of 26 course work hours plus 6 thesis hours (Engl 699R).
- Introductory course (2 hours): Engl 600.
- Required courses (15 hours): two courses selected from Engl 612, 614, 616; three additional courses in Rhetoric and Composition or in Technical and Professional Communication.

- Breadth requirement (6 hours): two courses in literature and critical theory as approved.
- Electives (3 hours): one course.
- Thesis (6 hours of 699R): thesis, project, or portfolio.
- Examination: oral examination on thesis, related course work, and relevant topics.

Requirements for Degree—Creative Writing Emphasis.

- Credit hours: 32 minimum, consisting of 26 course work hours plus 6 thesis hours (Engl 699R).
- Introductory course (2 hours): Engl 600.
- Required courses (15 hours): Engl 617; two 518R courses; two courses in a related field, by advisement.
- Breadth requirement (3 hours): one course in rhetoric, critical theory, or foreign language literature (other than Engl 610).
- Electives (6 hours): two courses.
- Thesis (6 hours of 699R): creative work with critical introduction.
- Examination: oral examination on thesis and related topics.

Requirements for

Degree—Language Emphasis.

Note: See the Department of Linguistics and English Language for the language emphasis.

FINANCIAL ASSISTANCE

Financial assistance is available for this program through the English Department and other agencies in the university. However, the English Department does not offer its own scholarships.

Admitted students are encouraged to apply for instructorships, teaching and research assistantships, editing internships, and other awards that are provided as a financial and learning resource. The university makes some money available each year for tuition awards and handles federal student loans.

RESOURCES AND OPPORTUNITIES

The Department of English utilizes the **Humanities Research Center**. This center is especially active in the production of teaching and research materials, particularly those that are computer related.

The **Center for the Study of Christian Values in Literature** was established in 1980 to affirm the importance of religious and moral values in the creation and study of imaginative literature. It provides both a focus for activity and an encouragement to teachers, writers, scholars, and readers who believe in a value-centered literary tradition.

The **Writing Center** is available to assist students and faculty in improving their writing skills. Graduate students benefit particularly from critical evaluations of drafts of seminar papers and theses, and those with advanced writing skills may serve as interns in the center.

Faculty research interests are included in the faculty section following the course descriptions.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

500R. Eminent American Writers. (1–3)

Different writers each semester.

510R. Eminent English Writers. (1–3)

Different writers each semester.

515R. Advanced Scholarly Writing. (3)

Workshop for potential graduate students, graduate students, and professionals in all disciplines in preparing the thesis, dissertation, book chapter, and article.

516. Advanced Technical Writing. (3)

Prerequisite: Engl 316 or instructor's consent.

Advanced concepts, including literature of technical writing, liaison with technical staff, communication networks, rhetoric of graphics, and teaching and freelancing technical writing.

518R. Advanced Creative Writing. (3)

Prerequisite: Engl 318R or 319R; Engl 419R; or instructor's consent.

Writing fiction, poetry, children/adolescent literature, drama, creative nonfiction (course content varies with instructor); individual consideration of manuscripts. Two sections may not be taken simultaneously.

520R. Studies in Theme and Form. (1-3)

Topics vary: literature and film, myth and archetype, science fiction, etc.

590R. Individual Readings in English. (1-3)

Prerequisite: graduate coordinator's consent.

Language and/or literature beyond what is offered in the curriculum. May not be substituted for another catalog course.

599R. Academic Internship. (1-9)

Prerequisite: department chair's consent.

On-the-job training.

600. Introduction to Graduate Studies. (2)

Trends in postgraduate curricula, ideology, pedagogy, and professional publication in language and literature.

605. Literature and Religious Values. (3)

Aesthetic and theoretical analysis of major works from British, American, and other literatures that reflect and explore the Judeo-Christian tradition of belief, ethics, and culture.

610. Rhetoric and Composition. (3)

Theory and methods of teaching rhetoric and composition; emphasis on rhetoric's relationship to the study of literature and language. (Required of all graduate student instructors.)

611R. Studies in Rhetoric. (3)

Focused studies on a specific topic in rhetoric, composition, or professional communication.

612. History of Rhetoric. (3)

Major texts, thinkers, and movements of the Western rhetorical tradition from classical antiquity to the present.

613. Rhetorical Criticism. (3)

Interpreting and evaluating rhetorical acts and artifacts, including literature, for the purpose of understanding rhetorical theory and practice.

614. Theory of Rhetoric and Composition. (3)

Rhetorical theory and its relationship to current issues in rhetoric and composition.

616. Research in Rhetoric and Composition. (3)

Research methods in rhetoric and composition; evaluation of assumptions, strengths, and limitations of each method; identification of student research topics.

617. Creative Writing Theory. (3)

Theories and techniques of creative writers, primarily in fiction, poetry, and creative nonfiction.

625. Old English Literature. (3)

Prerequisite: Engl 525.

Close reading of Old English texts in the original, emphasizing literary and cultural values.

630. Theoretical Discourse. (3)

Modes of criticism: how to analyze assumptions, methods, and interpretations; how theory relates to practice; how to manage conflict among theories.

631. Studies in the English Novel. (3)

Analysis of literary values and techniques in selected novels.

635. Studies in the American Novel. (3)

Various approaches to the novel.

641. Studies in Drama. (3)

Intensive study of drama.

650R. Studies in Literary Criticism. (3)

Modern critical theory and practice applied to specific literary works.

655. Women's Textual Studies. (3)

Ways feminist critical insights affect the study of language, literature, and culture.

658R. Ethnic, Regional, and Other Literatures in English. (3)

Emphasis varies with instructor.

661. Studies in Early American Literature. (3)

Texts from times of the English settlement through the early 1800s.

662. Studies in Early Nineteenth-Century American Literature. (3)

Texts from the early 1800s through midcentury, with special attention to romanticism in America.

664. Studies in Late Nineteenth-Century American Literature. (3)

Texts from the middle through the end of the nineteenth century, with special attention to realism in America.

665. Studies in Early Twentieth-Century American Literature. (3)

Texts, trends, and writers from 1900 to midcentury.

666. Studies in Late Twentieth-Century American Literature. (3)

Texts, trends, and writers from the end of World War II to the present.

667. Studies in Folklore. (3)

Prerequisite: Engl 391 or instructor's consent.

Directed study in folklore and folkways, including Mormon heritage and tradition. Collecting, analyzing, and editing.

669R. Teaching English in the Secondary Schools. (2)

Prerequisite: Engl 377 or instructor's consent.

Literature, writing, language, and reading materials appropriate to English courses; effective use of these materials.

671. Studies in English Medieval Literature. (3)

Close reading in the original of a principal work, such as *Troilus and Cryseyde*, *Piers Plowman*, or *Sir Gawain and the Green Knight*, emphasizing its relation to other literature, culture, and history of the period.

672. Studies in English Renaissance Literature. (3)

Individual authors, styles, influences, and trends in sixteenth- and seventeenth-century English literature.

673. Studies in English Literature from 1660 to 1780. (3)

Selected writers from 1660 to 1780.

674. Studies in English Romanticism. (3)

Selected writers and trends from 1780 to 1832.

675. Studies in Victorian Literature. (3)

Literary genres, values, and techniques in representative works from 1832 to 1890.

676. Studies in Modern British Literature. (3)

Selected authors and works from 1890 to 1950.

680. Studies in Contemporary Literature. (3)

Specific trends in literature and criticism since midcentury.

682. Studies in Shakespearean Scholarship and Criticism. (3)

699R. Master's Thesis. (Arr.)

FACULTY

BAKER, ROGER G., *Associate Professor*. EdD, Brigham Young University, 1977. Bible as Literature; Composition.

BENNION, JOHN S., *Associate Professor*. PhD, University of Houston, 1989. Creative Writing; British Novel; Mormon Literature.

BOSWELL, GRANT M., *Associate Professor*. PhD, University of Southern California, 1985. Rhetorical Theory and History; Composition Theory.

BURTON, GIDEON O., *Assistant Professor*. PhD, University of Southern California, 1994. History of Rhetoric; Renaissance Literature; Mormon Criticism and Literature.

CHRISTIANSEN, NANCY L., *Assistant Professor*. PhD, University of California, Los Angeles, 1994. History and Theory of Rhetoric; Sixteenth-Century English Literature.

CLARK, GREGORY D., *Professor*. PhD, Rensselaer Polytechnic Institute, 1985. Rhetorical Theory and Criticism; Early American Literature.

CRISLER, JESSE S., *Professor*. PhD, University of South Carolina, 1973. Nineteenth-Century American Literature; Naturalism; Adolescent Literature.

CRONIN, GLORIA L., *Professor*. PhD, Brigham Young University, 1980. Twentieth-Century American Literature; Jewish American Literature; Nineteenth- and Twentieth-Century Women's Literature.

CROWE, CHRISTOPHER E., *Professor*. EdD, Arizona State University, 1986. English Education; Adolescent Literature.

CUTCHINS, DENNIS R., *Assistant Professor*. PhD, Florida State University, 1997. American Literature; Folklore.

CUTLER, EDWARD S., *Assistant Professor*. PhD, University of California, San Diego, 1997. Nineteenth-Century American Literature.

DEAN, DEBORAH M., *Assistant Professor*. PhD, Seattle Pacific University, 1999. English Education; Writing Pedagogy.

DUERDEN, RICHARD Y., *Associate Professor*. PhD, University of Chicago, 1989. Sixteenth- and Seventeenth-Century English Literature; Literary Theory.

EASTLEY, AARON, *Assistant Professor*. PhD, University of California, San Diego, 2003. Twentieth-Century and Post-Colonial British Literature.

ELIASON, ERIC A., *Assistant Professor*. PhD, University of Texas, Austin, 1998. Folklore.

FOX, JAY, *Professor*. PhD, Purdue University, 1971. Late Nineteenth- and Early Twentieth-Century British Literature; Literature and Film.

GEARY, EDWARD A., *Professor*. PhD, Stanford University, 1971. Late Nineteenth- and Early Twentieth-Century British and American Literature; Nature Writing.

GRIERSON, SIRPA T., *Assistant Professor*. PhD, University of Southern Mississippi, 1996. English Education; Reading and Educational Research.

HANSEN, KRISTINE, *Professor*. PhD, University of Texas, Austin, 1987. Rhetoric; Composition Theory.

HARRIS, CLAUDIA W., *Associate Professor*. PhD, Emory University, 1990. Irish Literature; Modern and Contemporary Drama; Contemporary British Literature.

HATCH, GARY L., *Associate Professor*. PhD, Arizona State University, 1992. History and Theory of Rhetoric; Eighteenth-Century English Literature.

HICKMAN, TRENTON L., *Assistant Professor*. PhD, State University of New York, Stony Brook, 2000. Nineteenth- and Twentieth-Century American Literature; Latino Literature; Anglophone Caribbean Literature.

HOWE, SUSAN, *Associate Professor*. PhD, University of Denver, 1989. Creative Writing; Contemporary American Poetry and Drama.

JOHNSON, KIM, *Assistant Professor*. PhD, University of California, Berkeley, 2003. Poetry; Renaissance Literature.

JORGENSEN, B. W., *Associate Professor*. PhD, Cornell University, 1978. Creative Writing; Nineteenth-Century American Literature; Contemporary American Fiction.

LARSEN, LANCE E., *Associate Professor*. PhD, University of Houston, 1993. Creative Writing; American Literature; Contemporary Poetry.

LAWRENCE, A. KEITH, *Associate Professor*. PhD, University of Southern California, 1987. Early American Literature; Asian-American Literature.

LUNDQUIST, SUZANNE E., *Associate Professor*. DA, University of Michigan, 1985. Native American Sacred Texts and Modern Novels; Third World Literature.

MASON, NICHOLAS A., *Assistant Professor*. PhD, State University of New York at Stony Brook, 1999. Eighteenth- and Nineteenth-Century British Literature.

MCINELLY, BRETT C., *Assistant Professor*. PhD, University of Cincinnati, 2000. British Novel; Post-Colonial Theory; Composition Studies.

MUHLESTEIN, DANIEL K., *Assistant Professor*. PhD, Rice University, 1992. Literary Theory; English Romantic Literature.

PAUL, DANETTE, *Assistant Professor*. PhD, Pennsylvania State University, 1996. Rhetoric and Composition; Rhetoric of Science.

PAXMAN, DAVID B., *Professor*. PhD, University of Chicago, 1982. Eighteenth-Century English Literature; Intellectual History.

PERRY, DENNIS R., *Associate Professor*. PhD, University of Wisconsin, Madison, 1986. Early American Literature; Cinema Studies; Poe Studies.

PETERSEN, ZINA N., *Assistant Professor*. PhD, Catholic University, 1997. Medieval English Studies; Women's Devotional Literature.

PLUMMER, LOUISE R., *Associate Professor*. MA, University of Minnesota, 1984. Creative Writing.

RUDY, JILL T., *Assistant Professor*. PhD, Indiana University, 1997. Folklore.

SIEGFRIED, BRANDIE R., *Associate Professor*. PhD, Brandeis University, 1993. Sixteenth- and Seventeenth-Century English Literature; Women's Studies; Literary Theory.

SNYDER, PHILLIP A., *Associate Professor*. PhD, University of North Carolina, Chapel Hill, 1988. Twentieth-Century British and American Literature; Autobiography.

TALBOT, JOHN C., *Assistant Professor*. PhD, Boston University, 2001. Classics; English Poetry.

TANNER, JOHN S., *Professor*. PhD, University of California, Berkeley, 1980. Milton; Seventeenth-Century English Literature.

TANNER, STEPHEN L., *Ralph A. Britsch Humanities Professor of English*. PhD, University of Wisconsin, Madison, 1969. American Literature; Literary Criticism.

TAYLOR, SALLY T., *Professor*. PhD, University of Utah, 1975. Creative Writing; Shakespeare.

THAYER, DOUGLAS H., *Professor*. MFA, University of Iowa, 1962. Creative Writing.

THOMAS, PAUL R., *Associate Professor*. DPhil, University of York, England, 1982. Chaucer, Middle English Language and Literature; English Renaissance Literature.

THURSBY, JACQUELINE, *Associate Professor*. PhD, Bowling Green State University, 1994. English Education; Folklore.

WALKER, STEVEN C., *Professor*. PhD, Harvard University, 1973. Victorian Literature; Bible as Literature.

WICKMAN, MATTHEW F., *Assistant Professor*. PhD, University of California, Los Angeles, 2000. Eighteenth-Century British Literature; Literary Theory.

YOUNG, BRUCE W., *Associate Professor*. PhD, Harvard University, 1983. English Renaissance Literature; Shakespeare.

ZIMMERMAN, BEVERLY B., *Associate Professor*. PhD, Brigham Young University, 1994. Technical Communication; Computers and Composition.

SCHOOL OF FAMILY LIFE

Director: James M. Harper
Associate Director for Research and Scholarship: Alan J. Hawkins

380 SWKT
 P.O. Box 25518
 Provo, UT 84602-5525
 (801) 422-9093

Marriage, Family, and Human Development Graduate Coordinator:
 Thomas W. Draper
 (801) 422-4438

Marriage and Family Therapy Graduate Coordinator: Robert F. Stahmann
 (801) 422-3888

Sociology (Comparative Family Specialization): (801) 422-6706

THE PROGRAM OF STUDIES

The goal of the School of Family Life is to provide education in prevention and intervention that promotes quality family living across generations. The graduate programs in the school are noted for contributions in theory, philosophy, and practice in home and family life education, optimal human development, and marriage and family therapy.

Faculty research interests focus on intergenerational relationships and programs that strengthen marriages and families.

Six degrees are associated with the School of Family Life: Marriage, Family, and Human Development—MS; Marriage, Family, and Human Development—PhD; Marriage and Family Therapy—MS; Marriage and Family Therapy—PhD; Sociology—PhD (Comparative Family Specialization); Youth and Family Recreation—MS.

Marriage, Family, and Human Development—MS, PhD

The graduate program is designed to (1) address the theories, research, and practices that strengthen marriages, (2) enhance the development of children, and (3) unfold the characteristics of quality nurturing rela-

tionships across generations. Students are taught to prevent or intervene in challenging family circumstances across the life span and to understand the factors that contribute to families' temporal well-being.

Typically from six to eight students are admitted each year to the program, with the proportion of MS and PhD degree candidates varying each year. The total number of students in the MFHD programs is usually between twenty-five and thirty.

For a program brochure containing additional information about scholarships, assistantships, ongoing faculty research programs, and research facilities, contact the graduate secretary of the School of Family Life.

Marriage, Family, and Human Development—MS

The MS degree in MFHD provides students with a broad-based understanding in family sciences, human development, and resource management. Students construct an individualized program of study that helps them also acquire depth in one or more of these three core areas and/or other areas in the field, such as teaching, family life education, home economics education, and early childhood education. For some the MS is a terminal graduate degree that enhances professional opportunities in educational settings, such as teaching at the college level, in secondary education, in the Church Educational System, or in becoming a university preschool administrator. For other students this degree is designed to prepare them for doctoral study.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10. Students may begin study during spring or summer term.
- Application requirements: (1) at least three letters of recommendation, two of which must be from academic faculty or others qualified to assess academic qualifications; (2) verbal, quantitative, and

analytic writing GRE scores; (3) transcripts of previous studies.

Recommended Courses.

Students interested in applying to the MFHD master's degree program should consider enrolling in the following applicable courses (or equivalent):

Statistics: Stat 221 or Soc 306 or Psych 301.

Research Methods: MFHD 300.

An upper-division human development course: for example, MFHD 330, 351.

An upper-division marriage and family course: for example, MFHD 354, 360.

Requirements for Degree.

- Credit hours: 33.
- Core courses: MFHD 600, 611, 612, Soc 605 (or Stat 511, MFHD/Soc 602, or Soc 606 with chair's approval). Student will also take 6 thesis credit hours (699R) and 15 hours of elective credit from the department. All courses that count toward the degree must be approved by the student's chair, committee members, and the graduate coordinator on the student's study list.
- Program of study: approved by the student's committee and the graduate coordinator. It may include courses in early childhood education, family life education, family processes, home economics, human development, gerontology, or resource management.
- Thesis.
- Examination: defense of thesis and course work.

Marriage, Family, and Human Development—PhD

The primary focus of doctoral study is to help students become effective educators and scholars. The majority of graduates find professional positions in university departments related to family sciences or child and family studies. Some find positions in community settings, research organizations, or the mass media; and others choose to work for the Church Educational System or in business settings.

The PhD degree in MFHD provides integrated and in-depth learning experiences in family sciences, human development, and resource management. It also offers the opportunity to acquire expertise in a number of different aspects of the field, as well as in several closely related to it, such as sociology and psychology.

Offered on the basis of competence rather than the completion of a specified number of courses, the degree usually requires a minimum 48 hours of course work and 18 dissertation hours. If students have completed study beyond their master's degree, their transcript is evaluated to determine which courses or other experiences can be applied toward the doctoral program of study.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10. Students may begin study during the spring or summer term.
- Application requirements: (A) at least three letters of recommendation, two of which must be from academic faculty or others qualified to assess academic qualifications; (B) verbal, quantitative, and analytic writing GRE scores; (C) transcripts of previous studies.
- Prerequisites: most students complete a master's degree in this or a related field. However, some students may be admitted with a BS or BA degree and complete a master's and then a PhD degree in an integrated program of study. MFHD 600, 611, 612, Soc 605 or Stat 511 or MFHD/Soc 602 or Soc 606, or their equivalents.

Requirements for Degree.

- Credit hours (72): minimum 54 course work hours plus 18 dissertation hours.
- Required courses: MFHD 760; doctoral-level research methods course such as MFHD 601, 602, or Soc 604; 12 credit hours of advanced statistics selected from Stat 511, MFHD-Soc 602, Soc 605, 606, 706R (one semester of Soc

- 706R must be included); MFHD 603 practicums (typically).
- Program of study: approved by the student's committee and the graduate coordinator. It may include courses in early childhood education, family life education, family processes, home economics, human development, gerontology, or resource management.
 - Dissertation: 18 hours minimum.
 - Examinations: (A) a qualifying written examination; (B) oral defense of dissertation.

Marriage and Family Therapy—MS

The marriage and family therapy program offers the master of science degree as a two-year program. The objective of this degree is to train persons who will be outstanding clinicians, prepared to function in a wide variety of marriage and family therapy settings. The curriculum is based on state licensure/certification requirements and is accredited by the Commission on Accreditation of the American Association for Marriage and Family Therapy. The master's degree is the basic educational credential for independent practice in marriage and family therapy.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10 (U.S. and international).
- Application requirements: (1) at least three letters of recommendation; (2) GRE general test (verbal, quantitative, and analytic writing); and (3) letter of intent.
- Recommended: background in research, e.g., research methodology and statistics; behavioral sciences, e.g., personality, child development, abnormal psychology, learning theory; social sciences, e.g., marriage, family, and human development; social psychology; sociology.

Requirements for Degree.

- Credit hours (61): minimum 55 course work hours plus 6 thesis hours (699R).

- Required courses: MFT 563, 645, 649, 650, 651, 652, 653, 654, 655R (16 hours), 656, 699R (6 hours); MFHD 600, 663; Stat 511 or Soc 605; electives (3 hours).
- Clinical requirement: 500 hours of direct client experience.
- Thesis.
- Examination: oral defense of thesis.

Marriage and Family Therapy—PhD

The program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education of the American Association for Marriage and Family Therapy and has three interrelated emphases—Clinical Practice, Teaching/Supervision, and Research.

There are two options for the PhD degree in marriage and family therapy. The first, for students who already have an MFT master's degree, should take approximately three years to complete. The second is for the post-baccalaureate student and should take approximately five years to complete. The master's curriculum is followed during the first two years, with the MS degree awarded at the completion of those requirements, before beginning doctoral studies.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10 (U.S. and international).
- Application requirements: (1) at least three letters of recommendation; (2) GRE general test (verbal, quantitative, and analytic writing); and (3) letter of intent.
- Recommended:
Postmaster's Degree Option: master's degree from a regionally accredited college or university. (Applicants without a marriage and family therapy master's degree must complete MFT course work and clinical experience.)
Postbaccalaureate Degree Option: baccalaureate degree from a regionally accredited college or university; background in research, e.g., research methodology and statistics (5 hours); behavioral sci-

ences, e.g., child development, abnormal psychology, learning theory (9 hours); social sciences, e.g., family sciences, psychology, social psychology, sociology (6 hours).

Requirements for Degree.

- *Postmaster's Degree Option (63):* minimum 45 course work hours beyond the master's, plus 18 dissertation hours (MFT 799R).
- *Postbaccalaureate Degree Option:* minimum 55 master's course work hours, plus 6 thesis hours (MFT 699R) and 45 beyond the master's plus 18 dissertation hours (MFT 799R). **Students must complete all master's degree requirements and pass a qualifying interview before continuing in the doctoral program.**
- Required courses: determined in consultation with graduate committee.
- Minor: any minor approved by graduate committee, but not required.
- Clinical requirement: 500 hours of direct client contact after completing the MFT MS requirements.
- Dissertation.
- Examinations: (A) written and oral comprehensive examinations in clinical practice, teaching/supervision, and research; (B) oral defense of dissertation.

Sociology—PhD (Comparative Family Specialization)

(See Sociology.)

Youth and Family Recreation—MS

(See Recreation Management and Youth Leadership, College of Health and Human Performance.)

FINANCIAL ASSISTANCE

The programs offer graduate research and teaching assistantships, supplementary awards and scholarships, and internships as aid. Once admitted to the program, the student will receive by mail a program application for financial assistance.

RESOURCES AND OPPORTUNITIES

Certified Family Life Educator Program. Students in the School of Family Life may enhance their graduate programs by taking course work that qualifies them for *provisional status* as a certified family life educator (CFLE). This is a nationally recognized credential given by the National Council on Family Relations for professionals who specialize in teaching and enrichment of marriage and family relationships. The graduate programs in the School of Family Life have been approved by the National Council on Family Relations as offering a quality curriculum that fulfills CFLE requirements. Students who wish to pursue careers in teaching at the college or university level, in providing community marriage and family education programs, or in teaching parent education are encouraged to complete the following CFLE-approved courses as part of their graduate program: MFHD 550, 564, 692R; 540 or 545; 511 or 660; 565; MFT 563, 645; MFHD 561 or MFT 656; MFHD 665 or MFT 656. For additional information see the School of Family Life.

Family Studies Center. An interdisciplinary research institute focusing on studies related to all aspects of the family, the center encourages and supports research on family-related topics ranging from prenatal development to problems of aging. Many of the faculty in the college are actively engaged in such research and receive support from the center. Activities include weekly symposia for sharing and evaluating findings, conferences on special topics, and outreach to bring valuable information on strengthening families to both families and family practitioners.

Comprehensive Clinic. The Comprehensive Clinic at Brigham Young University is a unique interdisciplinary training and research facility housing the finest video and computer facilities available and a staff of skilled technicians and secre-

taries to support graduate student and faculty research. The clinic currently functions as a training facility for an AAMFT-approved marriage and family therapy PhD and for MS training programs. In addition, the clinic provides the university and the broader geographical community with mental health services involving between 200 and 250 clients each week.

Family, Home, and Social Sciences Computing Center. The center assists faculty and students with social science data processing and other computing needs on main-frame and personal computers. Technical support and consultation services for both statistics and graphics are available to students working on research projects, theses, and dissertations.

Child and Family Laboratories. These excellent facilities provide a practicum setting in which graduate students develop skills in conducting and interpreting research involving small children.

Women's Research Institute. Initially established in 1978, the Women's Research Institute became a part of the College of Family, Home, and Social Sciences in September 1983. Since then the institute has awarded fellowships to upper-division and graduate students for conducting research on women and women's issues in amounts up to \$500 annually for selected projects. Faculty grants became available through the institute in 1984.

The college also provides additional research and academic support to family life programs through the Camilla Eyring Kimball Chair of Home and Family Life.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

Marriage and Family Therapy

501R. Workshop in Marriage and Family Therapy. (1-2)

Prerequisite: instructor's consent.

Training in delivery of and research about psychoeducational programs for couples and families.

563. Theoretical Foundations of Family Systems. (3)

Systems theory and cybernetic approaches to family processes and epistemological issues.

590R. Readings in Marriage and Family Therapy. (1-2)

Prerequisite: instructor's consent.

Discussions and reports of current readings.

595R. Special Topics in Marriage and Family Therapy. (1-2)

Prerequisite: marriage and family therapy major status; instructor's consent.

Individual study for qualified students.

603R. Research Practicum. (3)

Prerequisite: marriage and family therapy major status; instructor's consent.

Design, data collection, data analysis, and write-up.

645. Analysis and Treatment of Human Sexual Development. (3)

Prerequisite: MFT 650.

Knowledge and skill required to analyze and treat questions related to human sexual development.

649. Addictions and Violence in Families. (3)

Assessment and treatment of multiple-problem family systems, emphasizing addictions and abuse.

650. Theoretical Foundations of Marital and Family Therapy. (3)

Epistemological and theoretical issues in marital and family therapy, including normal family processes and personal and intergenerational family issues.

651. Psychopathology and Assessment in Marriage and Family Therapy. (3)

Diagnosing and assessing mental disorders and dysfunctional relationships. Etiology and diagnosis of individual, marital, and family psychopathology.

652. Marital and Individual Psychotherapy. (3)

Prerequisite: marriage and family therapy major status.

Assessment, intervention techniques, therapist's role, and principle processes in theories of systemic individual and marital psychotherapy.

653. Family and Multigenerational Psychotherapy. (3)

Prerequisite: marriage and family therapy major status.

Systemic theories and strategies to diagnose and treat specific problems in dysfunctional families.

654. Issues of Gender and Ethnicity. (3)

Gender, ethnic, and minority issues in family systems, society, and clinical practice as they relate to individual, marital, and family treatment.

655R. Intermediate Practicum in Marriage and Family Therapy. (2-3)

Experience in counseling individuals, premarital and marital dyads, families, groups of dyads, and multiple families. For marriage and family therapy majors only.

656. Ethical, Legal, and Professional Issues for Family Therapists. (3)

Prerequisite: marriage and family therapy major status.

693R. Independent Readings. (1-3)

695R. Special Topics. (1-3)

Variable topics, including socialization of children, therapeutic intervention with special populations, and marital processes. Courses offered alternate years: (1) Spirituality in Clinical Perspective and Practice; (2) Premarital and Remarital Intervention; (3) Play Therapy.

699R. Master's Thesis. (6-9)

700. Family Therapy Research Methods. (3)

Prerequisite: MFHD 600, Soc 303R; or equivalents.

Advanced study of MFT research methods, including meta-analysis, power analysis, grant writing, and other advanced topics.

750. Supervising Marriage and Family Therapy. (3)

Prerequisite: doctoral marriage and family therapy major status.

Theory, research, and practice of supervising marriage and family therapists. Supervised experience.

751. Advanced Theory in Marriage and Family Therapy. (3)

Prerequisite: doctoral marriage and family therapy major status.

Advanced family therapy approaches to the diagnosis and treatment of affective, behavioral, and cognitive disorders.

753. Advanced Clinical Specialization in Marriage and Family Therapy. (3)

Prerequisite: doctoral marriage and family therapy major status.

Advanced approaches in treating dysfunctional individual, marital, and family systems.

754. Family Therapy for Children and Adolescents. (3)

Prerequisite: doctoral marriage and family therapy major status.

Family psychotherapy with children and adolescent issues, emphasizing treatment and family interventions. Various theoretical perspectives as well as diagnosis and assessment.

755R. Advanced Practicum in Marriage and Family Therapy. (2-3)

Prerequisite: doctoral marriage and family therapy major status; MFT 650, 655R, or equivalent.

760R. Supervision Practicum in Marriage and Family Therapy. (1)

Prerequisite: MFT 750 and instructor's consent.

Supervised experience in supervising practicum students.

770R. Clinical Internship. (1)

Full-time family therapy training and practice at an approved agency.

793R. Research Seminar in Marriage and Family Therapy. (1-3)

Prerequisite: doctoral marriage and family therapy major status.

Integrating and applying research design and statistics to the study of marital and family therapy.

799R. Doctoral Dissertation. (1-9)

Marriage, Family, and Human Development

501R. Workshop in Marriage, Family, and Human Development. (1-2)

Prerequisite: 8 hours in family sciences or department chair's consent.

Intensive study in applying principles of specified family sciences, subject matter in early childhood education, child development, family relationships, family resource management, or marriage/family therapy.

510. Seminar in Intellectual Development. (3)

Prerequisite: MFHD 514.

Current theories and research on intellectual development.

511. Familial Influences on Social Development. (3)

Prerequisite: MFHD 330 or equivalent.

Current theories and research on social development, peer relations, and behavior. Familial/parenting effects as moderated by beliefs, genetics, gender, social cognitions, culture, child guidance, interventions.

512. Emotional and Moral Development. (3)

Prerequisite: instructor's consent.

Research, theories, and educational implications; preschool through adulthood.

514. Theories of Human Development. (3)

Prerequisite: MFHD 330 or equivalent.

Models and concepts in dominant contemporary developmental theories.

520. Head Teachers Practicum in Preschool. (4)

Prerequisite: MFHD 322 or equivalent.

Head teaching proficiencies: guiding teachers of young children, techniques for involving parents, evaluating student teachers, assessing child performance, reviewing child guidance, and developing curriculum.

522R. Seminar in Early Childhood Education. (2)

Prerequisite: MFHD 322 or equivalent.

Teacher skills: developing, applying, measuring, and evaluating effective techniques. Curriculum: selecting, organizing, and creating curriculum materials for young children.

540. Family Economics. (3)

Economic functioning of household; role of income, employment, and household production as determinants of family living level.

542. Work and Family. (3)

Introduction to contemporary work/family issues. Framework for helping parents and managers deal effectively with work/family issues at work and home.

545. Family Financial Resource Management. (3)

Prerequisite: instructor's consent.

Applying theories and principles in managing financial resources to meet needs of individuals and families.

550. (MFHD-Soc) Contemporary Family Theories. (3)

Prerequisite: MFHD 250, Soc 311, or equivalent.

Introduction to basic micro, macro, and processual approaches to study of the family; social and political theory on the family; philosophical issues and assumptions underlying family theory, research, and practice.

551. Fathering: Scholarship and Intervention. (3)

Prerequisite: instructor's consent.

Quality fathering across cultures and in varied family circumstances. Historical changes in fathering; challenges to good fathering; effective interventions with fathers.

561. Seminar in Family Law. (3)

Prerequisite: concurrent registration in MFHD 461.

Intensive investigation of issues and concepts influencing legal aspects of marriage and family life.

566. Family Life Education in the University. (1-3)

Prerequisite: instructor's consent.

Delivering family life education in university settings. Working with a faculty mentor, making presentations, and preparing basic instructional materials.

567R. Practicum in Family Life Education. (1)

Prerequisite: MFHD 566 or instructor's consent.

Supervised experience teaching family living courses in a university setting.

570. Paradigms in Family Process and Analysis. (3)

Prerequisite: MFHD 371 or equivalent.

Alternative perspectives on family management, governance, and participation, with emphasis on modernist/management vs. familial orientation affecting leadership, parenting, autonomy and choice, altruism, and individualism.

590R. Readings in Marriage, Family, and Human Development. (1-2)

Prerequisite: instructor's consent.

Discussions and reports of current readings.

595R. Special Topics in Marriage, Family, and Human Development. (1-2)

Prerequisite: for family sciences major—instructor's consent.

Individual study for qualified students.

600. (MFHD-Soc) Graduate Research Methods. (3)

Prerequisite: MFHD or Soc 300 or equivalent.

Logic and conduct of experimental, quasi-experimental, nonexperimental, survey, and qualitative research.

601. Seminar in Survey Research. (3)

Prerequisite: Soc 300 or equivalent.

Survey research techniques of the behavioral sciences, emphasizing research and sampling designs.

602. (MFHD-Soc) Experimental Design. (3)

Prerequisite: MFHD-Soc 600, Stat 510 or equivalent, or instructor's consent.

Research methods, logic, writing, and data analysis.

603R. (MFHD-Soc) Research Practicum. (3)

Prerequisite: instructor's consent.

Design, data collection, data analysis, and write-up.

604. (MFHD-Soc) Ethnographic Research Techniques. (3)

Prerequisite: MFHD-Soc 600.

Rationale, methods, and limitations of qualitative research; includes participant observation and hermeneutic skills.

611 Advances in Human Development. (3)

Prerequisite: graduate standing or instructor's consent.

Recent advances in developmental psychology emphasizing infant development as it informs our understanding of perceptual, cognitive, linguistic, and social development in later childhood.

612. Introduction to Research and Theory in Family Science. (3)

Prerequisite: MFHD 300, 360; or equivalents; or instructor's consent.

Research and theories about current topics in family science.

623. History, Theories, and Research in Early Childhood Education. (3)

Prerequisite: instructor's consent.

History, research, philosophies, and models of early childhood education. Current issues and innovations.

660. (MFHD-Soc) Child and Adolescent Socialization. (3)

Child and adolescent development in the context of social interaction, with particular emphasis on the family. Current theory and research evaluated.

662. Family and Culture. (3)

The role of culture in the diversity of family structure and function. The family in history and in different societies.

663. The Individual and Family over the Life Course. (3)

Stability and change in individual development and family relationships from young adulthood to later life.

665. Philosophy in Family Life Education. (3)

Prerequisite: MFHD 310, 480, or instructor's consent.

Ethical issues and interpretive frameworks in human science that address quality of life in families.

692R. (MFHD-Soc) Seminar in Family Relationships. (1-3)

Premarital dyad, marital dyad, and issues in family interaction and familial roles.

693R. Independent Readings. (1-3)

695R. Special Topics. (1-3)

Variable topics, including socialization of children, therapeutic intervention with special populations, and marital processes.

- Getting Together, Mate Selection, and Early Marriage
- Religion and Family
- Development of Aggression

699R. Master's Thesis. (6-9)

760. Theory Construction Colloquium. (3)

Prerequisite: MFHD 550, 570; or instructor's consent.

Multiple perspectives on and experience in theory construction and analysis, focusing on familial processes, human development, and resource management.

791R. Seminar in Human Development. (1-2)

Prerequisite: must be a PhD candidate in human development.

792R. (MFHD-Soc) Family Symposium. (0.5)

Presentation and discussion of professional papers about the family.

794R. Special Topics in Child Development. (1-2)

799R. Doctoral Dissertation. (1-9)

FACULTY

BAHR, KATHLEEN S., Associate

Professor. PhD, Michigan State University, 1982. Family Ecology; Family Work.

BEUTLER, IVAN F., Professor. PhD,

Purdue University, 1974. Resource Management and Economy.

BUTLER, MARK, Associate Professor.

PhD, Texas Tech University, 1996. Family Therapy.

CARROLL, JASON S., Assistant

Professor. PhD, University of Minnesota, 2001. Marriage Relationships; Professional-Family-Community Partnerships.

CLARKE, MARIBETH, Associate

Professor. PhD, Utah State University, 1995. Home Economics.

CRANE, D. RUSSELL, Professor. PhD,

Brigham Young University, 1979. Marriage and Family Therapy.

DAY, RANDAL, Professor. PhD,

Brigham Young University, 1977. Family Studies.

DOLLAHITE, DAVID C., Professor.

PhD, University of Minnesota, 1988. Fathering.

DRAPER, THOMAS W., Professor. PhD,

Emory University, 1976. Early Childhood Education/Human Development.

DUNCAN, STEPHEN F., Professor. PhD,

Purdue University, 1988. Family Life Education; Family Outreach.

FEINAUER, LESLIE L., Professor. PhD,

Brigham Young University, 1981. Family Violence; Aging Families.

FLOM, ROSS, Assistant Professor. PhD,

University of Minnesota, 1999. Attention and Cognition in Infants.

HARPER, JAMES M., Professor. PhD,

University of Minnesota, Minneapolis, 1979. Family Interaction; Sibling Relationships; Aging Couples.

HART, CRAIG H., Professor. PhD,

Purdue University, 1987. Human Development and Early Childhood Education.

HAWKINS, ALAN J., Professor. PhD,

Pennsylvania State University, 1990. Fathering; Adult Development; Division of Family Work.

HILL, JEFF, Associate Professor. PhD,

Utah State University, 1995. Work and Family; Family Studies.

HOLMAN, THOMAS B., Professor. PhD,

Brigham Young University, 1981. Mate Selection; Qualitative Methodology and Research.

INGOLDSBY, BRON, Associate Professor.

PhD, University of Georgia, 1979. Cross-Cultural Marriage and Family.

KLEIN, SHIRLEY R., Associate Professor.

PhD, University of Utah, 1990. Family Life Education; Family Work; Prisons.

LARSON, JEFFREY H., Professor. PhD,

Texas Tech University, 1980. Marriage and Family Therapy; Family Life Education.

MCCOY, KELLY, Assistant Professor.

PhD, University of Georgia, 1992. Adolescence.

MEAD, D. EUGENE, Professor. EdD,

University of Oregon, 1967. Marriage and Family Therapy.

MILLER, RICHARD, Associate Professor.

PhD, University of Southern California, 1989. Family Gerontology; Research Methods; Family Therapy.

NELSON, DAVID A., Assistant

Professor. PhD, University of Minnesota Institute of Child Development, 1999. Childhood Aggression; Prosocial and Moral Development; Gender Differences; Familial and Cultural Influences on Social Development.

NELSON, LARRY J., Assistant Professor.

PhD, University of Maryland, 2000. Social Development of Young Children.

OLSEN, SUSANNE FROST, Associate

Professor. PhD, University of Georgia, 1992. Parent-Child Relationships Across the Life Course.

OLSON, TERRANCE D., *Professor.* PhD, Florida State University, 1972. Philosophy of Family Science; Family Life Education.

PORTER, CHRIS, *Assistant Professor.* PhD, Purdue University, 1996. Infancy and Toddlerhood.

ROBINSON, CLYDE C., *Associate Professor.* PhD, University of North Carolina, Greensboro, 1982. Human Development / Early Childhood Education.

STAHMANN, ROBERT F., *Professor.* PhD, University of Utah, 1967. Premarital, Marital Counseling Education.

WATSON, WENDY L., *Professor.* PhD, University of Calgary, 1984. Family Therapy; Gerontology.

FRENCH AND ITALIAN

Chair: Cinzia D. Noble

Graduate Coordinator: Scott M. Sprenger

Associate Graduate Coordinator: Corry Cropper

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THE PROGRAM OF STUDIES

The programs in French are designed to assist students seeking careers in foreign language education, international business or law, or the foreign service. The degree can also serve as a step toward doctoral studies.

One degree is offered through the Department of French and Italian: French Studies—MA. An additional MA in language acquisition (French) is offered as part of the College of Humanities' program in language acquisition.

The average number of students admitted to the program is from four to five per year. Most students require four semesters to complete the degree.

French Studies—MA

The departmental MA concentrates on establishing a solid foundation in French studies with a particular emphasis on literature and analytical skills. The thesis should represent in both substance and scope significant research that contributes to the discipline of French studies. Most students also benefit from additional training and experience as research assistants and as teachers in lower-division French classes.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 28 (international) and April 1 (U.S.); winter, June 30 (international) and September 1 (U.S.)
- Application requirements: entrance examination is GRE general test.

- Prerequisite: baccalaureate degree in French or equivalent; advanced French language proficiency based on American Council on Teaching of Foreign Languages (ACTFL) rating.
- Writing sample in French.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (Fren 699R).
- Required courses: CmLit 610; minimum 18 credit hours in French; maximum 3 credit hours in an approved course in a related field such as comparative literature, humanities, linguistics, or romance philology; 6 hours of Fren 699R (thesis). Students may petition to replace up to 3 credit hours of French with course work in a related field.
- Writing project: thesis.
- Examinations: comprehensive written and oral examinations on course work and reading list. Oral defense of thesis.

Language Acquisition and Teaching (French)—MA

See program description in Language Acquisition and Teaching section of this catalog.

FINANCIAL ASSISTANCE

Several graduate teaching fellowships and a few partial-tuition scholarships, based on need, will be available.

RESOURCES AND OPPORTUNITIES

The Department of French and Italian utilizes the **Humanities Research Center** for world-class computer-assisted language instruction and translation.

Students who desire a more intensive language study experience and practical application of the language under the direction of faculty and native residents may apply to live in the **Foreign Language Student Residence**. All activities in the individual apartments in the residence

are conducted in the foreign language. Graduate students may participate as students or as senior residents.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

French

670R. Tutorial Internship in French. (3)

Group or individual research in cooperation with graduate faculty member in problems relating to French. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisor.

680R. Special Studies in French. (1-3)

Group or individual study supervised by graduate faculty member in varying topics of specific interest in French.

690R. Seminar in French. (3)

Group or individual study supervised by graduate faculty member in varying topics of specific interest in French.

699R. Master's Thesis. (1-6)

Linguistics

(See Linguistics section of this catalog for courses.)

FACULTY

BUSH, MICHAEL D., *Associate Professor*. PhD, Ohio State University, 1983. Language Acquisition (Computer-Assisted Learning).

CROPPER, CORRY, *Assistant Professor*. PhD, University of Illinois, 1998. Nineteenth Century; French Short Story; Narratology.

ERICKSON, ROBERT G., *Assistant Professor*. PhD, Brigham Young University, 2000. Instructional Psychology and Technology; Second Language Acquisition.

HURLBUT, JESSE D., *Associate Professor*. PhD, Indiana University, 1990. French Literature (Medieval and Renaissance).

LAMBERT, L. GARY, *Professor*. PhD, Rice University, 1969. French Literature (Seventeenth Century, Eighteenth Century, Rousseau, Voltaire).

LE BRAS, YVON, *Associate Professor*. PhD, Laval University, 1992. French Literature (Seventeenth Century, Francophone).

LEE, DARYL, *Assistant Professor*. PhD, Yale University, 1999. French Literature (Nineteenth Century; French Verse; Film).

OLIVIER, MARC, *Assistant Professor*. PhD, University of Washington, 1999. French Literature (Seventeenth Century; Eighteenth Century; Cultural History).

SOWELL, MADISON U., *Professor*. PhD, Harvard University, 1979. Italian and Comparative Literature (Middle Ages, Renaissance); Descriptive Bibliography.

SPRENGER, SCOTT M., *Associate Professor*. PhD, Emory University, 1995. French Literature (Nineteenth Century, Twentieth Century, Film).

UNLANDT, NICOLAAS G. W., *Associate Professor*. DLitt, University of Amsterdam, Netherlands, 1992. French Literature (Middle Ages, Old French, Provençal).

GEOGRAPHY

Chair: J. Matthew Shumway
Graduate Coordinator: Samuel M. Otterstrom

690 SWKT
Provo, UT 84602-5526
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THE PROGRAM OF STUDIES

The Department of Geography offers a graduate program emphasizing the application of geographic skills in a research and problem-solving framework. This program will provide students with a unique combination of theory, analytical techniques, and computer skills that will enable them to work effectively and independently in a variety of employment and graduate research settings after graduation.

The strength of the program is centered on the use of multiple methods to "understand, and perhaps shape, the physical and human spaces of our planet." It does this by focusing on selected research methods that allow one to collect and integrate data at various scales of analysis.

Each student will be required to complete course work on the full range of methods, including but not limited to the following: geographic information systems (GIS), remote sensing, secondary data collection, survey data collection, interview data collection, qualitative analysis, and quantitative analysis.

The department's computer-based Cartography and Geographic Information Systems Laboratory is one of the premier training centers in GIS in the American west. Combined with the research interests of the department faculty, which are global in their diversity, it provides an unparalleled opportunity for graduate students to experience the excitement of research and creativity.

One degree is offered through the Department of Geography: Geography—MS.

Geography—MS

This program is designed to provide a general background at the graduate level for either a terminal degree or preparation for more advanced work. Students are required to work within the specialties of the faculty. These include GIS, remote sensing, land use, environmental planning, and cultural geography.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 15 (U.S. and international).
- Application requirements: minimum 3.2 GPA for last 60 semester credits; three academic letters of recommendation; and statement of intent describing field of interest and career goals. Decisions to admit are made by mid-March.
- Entrance examination: GRE general test. Scores must be received by February 15.
- Prerequisite: undergraduate minor in geography or equivalent; strong language background for area studies emphasis; and business mathematics or statistics background for business or industry emphasis.

Requirements for Degree.

- Credit hours (36): minimum 30 course work hours plus 6 thesis hours (Geog 699R), not including prerequisites.
- Required core course (3 hours): Geog 600.
- Required techniques courses (18 hours): At least one from each of the following three areas (the geography courses in the quantitative and qualitative areas are strongly recommended): quantitative methods (Geog 625, Soc 605, 606, 608, 706); GIS/remote sensing (Geog 312, 313, 317, 412, 413, 417, 503, 612); qualitative methods (Geog 626R, Soc 604, 608, Psych 512). Other courses may be allowed by the graduate committee, depending on content.
- Required topical courses (9 hours): three courses selected from Geog 501R, 510, 521R, 606R, 620R, 621R, 690R.

- Minor (optional): supporting courses chosen in consultation with committee.
- Thesis.
- Examination: oral defense of thesis and written exam of course work.

Suggested Two-Year Completion Schedule.

- First semester (fall)—Geog 600, techniques seminar, topical seminar, assignment to research project, approval of study program, presentation of research ideas in Geog 600.
- Second semester (winter)—Two techniques courses, topical seminar, writing of thesis proposal (must be approved by committee), presentation of thesis proposal to faculty and students.
- Third semester (fall)—Topical seminar, techniques course, thesis credit (3), work on thesis.
- Fourth semester (winter)—Two techniques courses, thesis credit (3), completion of thesis, written exam and oral defense of thesis.

FINANCIAL ASSISTANCE

Tuition assistance is awarded by the department on a competitive basis. Graduate students are employed as research assistants, teaching assistants, and graders.

RESOURCES AND OPPORTUNITIES

Computer Lab. The Geography Department has available for student instruction and use a \$1.3 million computer laboratory that contains state-of-the-art Windows NT workstations and software devoted to spatial analysis, statistics, decision making in urban/regional planning, cartography, GIS, photogrammetry, and satellite image processing. The workstations are supplemented by peripherals for scanning, digitizing, and large-format plotting. To assist in field mapping, high-accuracy global positioning system equipment is also provided for student use.

Graduate Student Laboratory.

Students will have access to computers and software.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

501R. Seminar in Geography. (1–3)

Detailed investigation of selected systematic and regional geographic topics.

503. Geographic Information Systems. (4)

Prerequisite: graduate standing. For nonmajors who have not taken Geog 211 or 212 or equivalent.

Concepts in the use of geographic information for solving advanced spatial problems. Introduction to use and production of maps and computer-based geographic information systems (GIS) as geographic tools. Hands-on emphasis on research applications in the students' disciplines.

510. Advanced Urban Dynamics and Planning. (3)

Prerequisite: Geog 310, 410, or equivalent.

Advanced study in urban geography and land use planning; emphasizes urban morphology, land use patterns, and spatial analysis; critical evaluation of models and theories.

521R. Geographic Information Practicum. (3)

Prerequisite: GIS major status; Geog 311, 312, 313, 317 (or equivalents); Geog 222 or 223 or equivalent; one 400-level GIS course.

Integration of various geographic technologies to solve a practical problem. Advanced topics in GIS, remote sensing, cartography, and programming as needed.

599R. Academic Internship. (1–3)

On-the-job experience. No more than 3 hours in cooperative education may apply toward any one degree.

600. Geographer's Craft. (3)

Prerequisite: graduate standing.

History of discipline; research methods and procedures; graduate student research within major sub-fields and intellectual currents of geography.

606R. Seminar in Regional Geography. (3)

Prerequisite: instructor's consent.

Applying geographic research techniques to selected regions of the world.

612. Seminar in Geographic Information Systems and Applied Remote Sensing. (3)

Prerequisite: Geog 515.

Integration of remote sensing, geographical information systems, photogrammetry, and fieldwork for solving geographic mapping problems.

620R. Seminar in Human Geography. (3)**621R. Seminar in Environmental Geography. (3)****625. Seminar in Quantitative Methods. (3)**

Prerequisite: Geog 600 and instructor's consent.

Selected topics in geographic research methods with analysis of data.

626R. Seminar in Geographic Methods. (1-3)

Focus on specific qualitative and/or field research methods.

690R. Special Topics. (1-4)**699R. Master's Thesis. (1-6)****FACULTY**

BEKKER, MATTHEW F., *Assistant Professor.* PhD, University of Iowa, 2002. Biogeography; Landscape Ecology.

DAVIS, JAMES A., *Associate Professor.* PhD, Arizona State University, 1993. Cultural Geography; Travel and Tourism; Urban Geography.

DURRANT, JEFFREY O., *Assistant Professor.* PhD, University of Hawaii, 2001. Environmental Land Use; Development; Africa, U.S. Public Lands.

EMMETT, CHAD F., *Associate Professor.* PhD, University of Chicago, 1991. Middle East; Political and Cultural Geography.

GLUCH, RENEE M., *Assistant Professor.* PhD, University of Utah, 2003. Remote Sensing and GIS Integration; Applied Urban Geography.

HARDIN, PERRY J., *Associate Professor.* PhD, University of Utah, 1989. Cartography; Geographic Information Systems; Remote Sensing.

JACKSON, MARK W., *Assistant Professor.* PhD, University of South Carolina, 2001. Remote Sensing; GIS; Landscape Ecology.

JACKSON, RICHARD H., *Professor.* PhD, Clark University, 1970. North America; Cultural Geography; Planning.

OTTERSTROM, SAMUEL M., *Assistant Professor.* PhD, Louisiana State University, 1997. Planning; Historical Geography; Regional.

PLEWE, BRANDON S., *Assistant Professor.* PhD, State University of New York, Buffalo, 1997. Geographic Information Systems; Cartography.

SHUMWAY, J. MATTHEW, *Associate Professor.* PhD, Indiana University, 1991. Population; Economic Geography.

GEOLOGY

Chair: Jeffrey D. Keith

Graduate Coordinator: Bart J. Kowallis

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THE PROGRAM OF STUDIES

Geology is the science that reveals how the earth works. The graduate program in geology at Brigham Young University is designed to prepare scientists to find solutions to many of the environmental and resource problems society faces.

The department offers one degree: Geology-MS. Areas of specialization include: Earth Science Education, Environmental Geology, and Geology.

The expected duration of the MS program is two years for full-time students who enter without deficiencies. The MS degree is designed to give the student a solid foundation in the theoretical and applied aspects of geology and a strong research experience. The thesis component allows each student to develop skills in defining a significant problem, developing a research strategy, acquiring and analyzing data, and technical writing. An MS degree in geology prepares a student for a wide variety of employment opportunities in industry, education, and government, or for advanced study toward a doctoral degree.

The department currently has approximately twenty-five graduate students in the MS program.

Geology—MS

Pursuit of the MS degree not only helps prepare students for exciting career opportunities in areas of distinct benefit to mankind, but it also allows them to experience the challenges and rewards of modern scientific research. It is expected that the thesis work will culminate in new understanding of a problem of

scientific significance and that results will be published in a reputable scientific journal.

Areas of specialization: Earth Science Education, Environmental Geology, and Geology.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international); winter, September 15 (U.S. and international).
- Application requirements: minimum required GPA is 3.0 overall and in all physical sciences (mathematics, chemistry, physics), as well as in geology courses.
- Entrance examination: GRE general test. GRE scores must be received in the Geology Department before application for admission will be considered.
- Prerequisite: baccalaureate degree. Arrangements to satisfy undergraduate deficiencies will be made in consultation with graduate coordinator.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (Geol 699R); 1 hour of Geol 591R.
- Required courses:
Geology: to be determined in consultation with advisor.
Environmental geology: Geol 635, 636, 637; 12 hours from Geol 411, 435, 436, 445, 521, 559, 560, 590R (approved by graduate committee), PAS 511, ChEn 411, CEEn 545, 550, 555, 641, 654, Hlth 454.
Recommended: Stat 501, 502.
Earth science education: Geol 697R (approved by graduate committee); 6–9 hours from Geol 411, 435, 440, 445, 451, 460, 480; 6 hours from IP&T 560, 564, 620, 652, 661. Any additional graduate courses in geology approved by graduate committee may be taken to satisfy remainder of 24 course work hours.
- Publishable thesis.
- Examinations: (A) comprehensive oral examination on course work; (B) final oral defense of thesis.

FINANCIAL ASSISTANCE

New graduate students are eligible for departmental scholarships, tuition scholarships, and teaching or research assistantships on a competitive basis.

Most regular degree-seeking students receive *some form* of financial aid. However, none may expect financial assistance from the department for more than four semesters.

Graduate students are also encouraged to seek additional support from industries and agencies outside the Department of Geology. **Note:** Such requests must be submitted to the department chair, who will forward them with a supporting letter.

RESOURCES AND OPPORTUNITIES

The Department of Geology has recently moved into the newly remodeled Eyring Science Center in 1998. Extensive renovation includes the construction of state-of-the-art classrooms with multimedia capabilities, new office space for faculty and graduate assistants, and modern laboratories. The new facilities house extensive instrumentation, computer facilities, and mineral, rock, and fossil collections.

The location of the university campus on the Wasatch Front near the juncture of the Rocky Mountains, the Colorado Plateau, and the Great Basin provides an incomparable natural laboratory for geology studies. The Department of Geology utilizes this natural setting, and the many geologic problems that remain in it to be studied, as one of our main assets.

The department is well equipped for graduate research in geology. A partial list of research equipment available includes: a wavelength dispersive electron microprobe (Cameca SX-50), stable isotope ratio mass spectrometer, an X-ray fluorescence spectrometer, atomic absorption spectrophotometers, a gradient elution ion chromatograph, an automated single-

crystal X-ray diffractometer, powder X-ray diffractometers, a visible/UV spectrophotometer, a cathodoluminescence microscope, a fluid inclusion heating and freezing stage, a core plug porosimeter/permeameter, liquid scintillation counters, 3D sub-surface mapping software, high-resolution GPS, Worden gravimeters, proton precession magnetometers, a ground-penetrating radar system, a twenty-four-channel seismic system, variable offset electrical resistivity equipment, and a Mössbauer spectrometer. Additional research facilities include:

The Earth Science Museum. This developing museum with affiliated laboratories houses major fossil groups, including one of the best dinosaur collections in the country. It also offers significant, and in some cases unique, assemblages of rocks, minerals, and maps, providing many research opportunities for faculty and students.

Fission Track Dating Laboratory. This laboratory provides student and faculty researchers with the geochronological potential to solve problems in stratigraphy and structural geology, to determine rates of uplift and subsequently to aid in thermal modeling, and to provide support for numerous other faculty and student research projects where dating of events is necessary.

Geophysics Laboratory. Supporting research work in exploration, environmental, and engineering geophysics, the lab houses seismic, ground-penetrating radar; electrical resistivity; and gravity, magnetic, and electromagnetic instrumentation, as well as computer support systems.

Hydrogeochemistry Laboratory. The hydrogeochemistry lab supports research programs in hydrology, environmental geology, economic geology, and petrology. In addition, the lab is used in teaching modern analytical techniques in upper-division undergraduate and graduate courses. Groundwater composition,

migration, and pollution have been major emphases of research.

Isotope Laboratory. The isotope laboratory provides for analysis of stable isotopes of H, C, N, and O, as well as ^{14}C and ^3H . Analysis of H and O isotopes in water is fully automated. The laboratory chiefly supports faculty, graduate, and undergraduate research. Hydrology, paleohydrology, paleoclimatology, and economic geology are currently major areas of research and teaching supported by this laboratory.

Sedimentology/Stratigraphy Laboratories. These labs support studies in stratigraphy, clastic and carbonate rocks, and micropaleontology. Analytical equipment to map and characterize both surface and subsurface reservoir-quality rocks, to resolve complex stratigraphic problems, and to understand diagenesis in sedimentary rocks is available to graduate and undergraduate students and faculty. Studies conducted in the labs have emphasized fluid flow and migration of both hydrocarbons and water, as well as detailed sequence stratigraphic modeling.

Faculty research interests currently include: studies of regional Cenozoic magmatism and tectonism in the Great Basin; composition of thermal waters; Cenozoic mammals in Mexico; Jurassic dinosaurs; Jurassic and Cretaceous bentonites; location and distribution of underground hazardous waste using geophysical methods; crystallography and crystal chemistry of silicate minerals; investigations of shallow subsurface geology using gravity, seismic, electrical, and magnetic methods; origins of copper and molybdenum deposits; tungsten skarns; reservoir characterization and sequence stratigraphy; Devonian ammonoids; and Carboniferous-Permian conodont biostratigraphy in the U.S. and Russia.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

Numerous courses are taught on alternate years or on a need basis. Please inquire with the department as to when courses will be offered.

COURSE DESCRIPTIONS

510. Conducted Field Trips. (1)

Prerequisite: any college-level geology course and instructor's consent.

Geology field trips.

521. Borehole Geophysics and Geology. (3)

Prerequisite: Phscs 121, 122, Geol 351, 370.

Applied well log analysis, including conventional and new techniques. Subsurface geology and lithology determined from many logs. Determining porosity, permeability, and fluid saturation with hydrology and hydrocarbon applications.

525. Petroleum Geology and Basin Analysis. (4)

Prerequisite: Geol 370.

Origin, migration, and entrapment of liquid and gaseous hydrocarbons. Tectonic basin development, including extensional, compressional, flexural, and strike-slip processes. Processes of basin-fill and thermal histories.

535. Contaminant Hydrogeology. (3)

Prerequisite: Geology 435 or equivalent.

Principles, tools, and applications used to solve heavy metal, organic, and radionuclide groundwater contamination problems. Topics include regulations, mass transport, multiphase flow, transformation, retardation, and attenuation.

545. Isotope Geochemistry. (3)

Prerequisite: Geol 352.

Use of stable and radioactive isotope systematics in geochronology and investigation of origins of rocks and waters.

550. Environmental Soil Chemistry. (3)

Prerequisite: Chem 105, 106, 107; or equivalents.

Chemistry of soil systems at macroscopic and microscopic scales, examined from the perspective of scientists interested in environmental assessment and remediation.

551. Advanced Mineralogy. (3)

Prerequisite: Geol 351 or equivalent.

Crystallography, structure, and crystal chemistry of major silicate mineral groups.

552. Igneous Petrology. (3)

Prerequisite: Geol 352 or equivalent.

Origin and evolution of magmas, emphasizing trace element and isotopic compositions and intensive properties as calculated from mineral compositions.

560. Reflection Seismology Theory. (3)

Prerequisite: Geol 375, Phscs 121, 123, 220; or equivalents.

Principles, tools, and methods used in seismic reflection geophysics, with exploration, engineering, environmental, and hydrological applications.

561. Applied Exploration Seismology. (3)

Prerequisite: Geol 375, Phscs 121, 123, 220; or equivalents.

Seismic acquisition processing and computer-assisted interpretation, emphasizing field deployment techniques, use of commercial data processing, and visualization software.

565R. Special Topics in Geology. (2-4)

Prerequisite: instructor's consent.

The following topics may be offered on demand: Geology for Teachers, X-Ray Crystallography, Instrumental Methods, Ore Deposits, Solid-Water Interface Chemistry.

574. Advanced Stratigraphy. (3)

Prerequisite: Geol 370 or equivalent.
Recommended: Geol 480 or equivalent.

Study of the stratigraphic record through modern methods of correlating stratal packages, emphasizing concepts of chronostratigraphy, biostratigraphy, lithostratigraphy, and absolute dating. Extended field trip required.

575. Advanced Structural Geology. (3)

Prerequisite: Geol 375, 410; or equivalent.

In-depth discussions of a variety of topics in structural geology, emphasizing current literature and problems.

580. Principles of Paleontology. (3)

Prerequisite: Geol 480.

Modern approaches to fossil study applied to areas of evolution, paleoecology, and biostratigraphy.

586. Vertebrate Paleontology. (4)

Prerequisite: instructor's consent.

History of vertebrate fossils. Field trips required. Credit applies in either zoology or geology. Laboratory studies.

590R. Short Courses. (1-3)

Short graduate-level courses offered on a random basis.

591R. Seminar. (0.5)

Seminars on various geologic topics by guest speakers. Total of 1 credit hour required.

599R. Academic Internship. (1-9)**601. Planet Earth. (3)**

Prerequisite: undergraduate degree.

Rigorous review of the fundamentals of geology, including Earth's origin and the evolution of the major geologic systems. Field trips.

635. Advanced Hydrogeology. (3)

Prerequisite: Geol 435; Math 321 or concurrent registration.

Equations governing fluid flow through saturated porous media under various geologic conditions; applying hydraulic characteristics to analysis of well and aquifer conditions.

636. Hydrogeochemistry. (3)

Prerequisite: Geol 435 or instructor's consent; Chem 105, 106, 107, or 111, 112.

Nature and origin of solutes and isotopes in groundwater systems. Applying geochemistry to evaluation of groundwater recharge conditions and flow patterns.

671. Sedimentary Petrology—Carbonate Rocks. (3)

Prerequisite: Geol 370.

Characteristics and significance of limestones and dolomites.

672. Sedimentary Petrology—Clastic Rocks. (3)

Prerequisite: Geol 370.

Characteristics of conglomerates, sandstones, and shales. Provenance studies of various terrains by thin section analysis. Extended field trip required.

695R. Research. (1-4)**696R. Readings and Conferences in Geology. (1-4)****697R. Directed Field Studies. (1-6)****699R. Master's Thesis. (6-9)****FACULTY****BICKMORE, BARRY R., Assistant**

Professor. PhD, Virginia Polytechnical Institute and State University, 1999. Low Temperature Geochemistry; Mineral Surface Chemistry; Water-Rock Interactions.

BRITT, BROOKS B., Assistant Professor.

PhD, University of Calgary, Canada, 1993. Vertebrate Paleontology; Taphonomy.

CHRISTIANSEN, ERIC H., Professor.

PhD, Arizona State University, 1981. Petrology; Geochemistry.

DORAIS, MICHAEL J., Research

Professor, PhD, University of Georgia, 1987. Igneous Petrology; Electron Microprobe Analysis.

GRIFFEN, DANA THOMAS, Professor.

PhD, Virginia Polytechnic Institute, 1975. Mineralogy; Crystallography.

HARRIS, RON, Professor. PhD,

University of London, England, 1989. Structure; Tectonics; Disaster Mitigation.

KEITH, JEFFREY D., Professor. PhD,

University of Wisconsin, 1982. Economic Geology; Geochemistry; Environmental Geology.

KOWALLIS, BART J., Professor. PhD,

University of Wisconsin, Madison, 1981. Structural Geology; Geochronology.

MAYO, ALAN L., Professor. PhD,

University of Idaho, 1981. Hydrogeology; Environmental Geology.

MCBRIDE, JOHN H., Professor. PhD,

Cornell University, 1987. Exploration Geophysics; Tectonics.

MORRIS, THOMAS H., Professor. PhD,

University of Wisconsin, Madison, 1986. Sedimentology; Stratigraphy; Clastic Petrology.

NELSON, STEPHEN T., Associate

Professor. PhD, University of California, Los Angeles, 1991. Isotope Geochemistry; Environmental Geology.

RITTER, SCOTT M., Professor. PhD,

University of Wisconsin, Madison, 1986. Invertebrate Paleontology; Carbonate Petrology.

GERMANIC AND SLAVIC LANGUAGES

Chair: Donald K. Jarvis
Graduate Coordinator, German Literature: Alan Keele

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THE PROGRAM OF STUDIES

One degree is offered through the Department of Germanic and Slavic Languages: German Literature—MA. An additional MA in language acquisition (German, Russian) is offered as part of the collegewide program in language acquisition (see Language Acquisition section of this catalog).

From four to six students are admitted to the literature program each year. Most students complete the degree within two years.

German Literature—MA

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 28 (international) and April 1 (U.S.); winter, June 30 (international) and September 1 (U.S.).
- Application requirements: entrance examination is GRE general test.
- Prerequisite: baccalaureate degree in German or in a related field such as English, comparative literature, humanities, etc. Minor deficiencies in German linguistics, culture, or other areas may be made up by enrolling in appropriate undergraduate courses. German language proficiency in all four skills at the advanced level as defined by the American Council on Teaching of Foreign Languages (ACTFL)—equivalent to the Interagency Language Roundtable (ILR) level 2.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (Germ 699R).

- Required courses: 24 hours, of which 15 must be German graduate courses and 9 may be interdisciplinary courses approved by a German faculty advisor; 6 hours of Germ 699R (thesis).
- A reading knowledge of a second foreign language (fourth semester or equivalent).
- Examination: oral examination on reading list (see graduate advisor), course work, and thesis.

FINANCIAL ASSISTANCE

Partial tuition assistance is available. Most MA students also work as paid teaching assistants.

RESOURCES AND OPPORTUNITIES

The Department of Germanic and Slavic Languages has access to the **Humanities Research Center** for computer-assisted language instruction and translation. Other resources are:

The Foreign Language Student Residence. Students who desire a more intensive language experience and practical application of the language under the direction of faculty and native residents may apply to live in the Foreign Language Student Residence. All activities are conducted in the foreign language. Housing is available for men and women in German, French, Spanish, Italian, Portuguese, Russian, Japanese, Chinese, Arabic, and Korean languages. Graduate students may participate as students or as senior residents.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

German

615. Applied German Linguistics. (3) On dem.

Prerequisite: Germ 450, 460, or equivalent.

Applying linguistics to the problems of teaching German grammar.

640R. German Literary Periods and Movements. (3)

In-depth study of a period or movement such as medieval, Renaissance, baroque, or eighteenth-century Germany; Romanticism; realism; fin-de-siècle Vienna; naturalism; 1890–1945; 1945–present.

641R. Studies in German Literary Genres. (3)

In-depth study of a genre such as drama, novel, novella, lyric, film.

642R. Major German Authors. (3)

In-depth study of one author such as Lessing, Goethe, B. V. Arnim, Kleist, Storm, Rilke, Brecht, Mann, Kafka, or Bachmann.

643R. Studies in Literary Theory. (3)

In-depth study of primary texts by contemporary literary theorists. May include topics such as the Frankfurt School, feminist criticism, reader response, or poststructuralism.

644R. Interdisciplinary Studies. (3)

Studies linking German literature, film, and the arts within German culture or across national boundaries.

670R. Tutorial Internship in German. (1–3)

Individual research in cooperation with graduate faculty members in problems relating to German. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisors.

680R. Special Studies in German. (1–3)

Individual study supervised by graduate faculty members in varying topics of specific interest in German.

690R. Seminar in German. (3)

Group studies supervised by graduate faculty members in varying topics of specific interest in German.

699R. Master's Thesis. (1-6)**Linguistics**

(See Linguistics section of this catalog for courses.)

Russian**670R. Tutorial Internship in Russian. (1-3)**

Individual research in cooperation with graduate faculty members in problems relating to Russian. Tutorial work in writing research papers. Topics vary according to interests and expertise of faculty supervisors.

680R. Special Studies in Russian. (1-3)

Individual study supervised by graduate faculty members in varying topics of specific interest in Russian.

690R. Seminar in Russian. (1-3)

Group studies supervised by graduate faculty members in varying topics of specific interest in Russian.

699R. Master's Thesis. (1-6)**FACULTY**

BREWER, CINDY P., *Assistant Professor.* PhD, University of Utah, 1998. German Literature (Eighteenth- and Nineteenth-Century Prose, Literature by Women).

BROWNING, GARY L., *Professor.* PhD, Harvard University, 1974. Russian Literature (Nineteenth- and Twentieth-Century Writers).

HART, DAVID KAY, *Professor.* PhD, University of Washington, 1979. Russian Language (Phonology, Morphology, Syntax).

JAMES, MICHELLE S., *Associate Professor.* PhD, University of Utah, 1987. German Literature (Lessing, Eighteenth and Nineteenth Centuries, Women's Studies).

KEELE, ALAN F., *Professor.* PhD, Princeton University, 1971. German Literature (Earlier Twentieth Century, 1945–Present, Rilke, Grass).

KELLING, HANS-WILHELM, *Professor.* PhD, Stanford University, 1967. German Literature (*Goethezeit*); Cultural History.

LUND, RANDALL J., *Assistant Professor.* PhD, University of Minnesota, 1986. Foreign Language Methodology; Teacher Education.

LYON, JAMES K., *Professor.* PhD, Harvard University, 1963. German Literature (Holocaust, Brecht, Celan).

McFARLAND, ROBERT B., *Assistant Professor.* PhD, University of California, Berkeley, 2000. German Literature (Urban Literature, Modernism); Cultural Studies.

PLUMMER, THOMAS G., *Professor.* PhD, Harvard University, 1972. German Literature (Weimar Period, Berlin, Modernism; German Film).

HEALTH SCIENCE

Chair: Gordon B. Lindsay
MPH Director: Brad L. Neiger
Graduate Coordinator: Ray M. Merrill

213 RB

Provo, UT 84602-2115
(801) 422-4428

THE PROGRAM OF STUDIES

The mission of public health is to assure the health and well-being of populations. It is the science and art of preventing disease, prolonging life, and promoting health and efficiency through organized research and interventions. The purpose of the graduate program is to prepare students to be leaders in public health and global health promotion.

Use of the term *global* in public health and health promotion efforts reflects the growing reality that the spread of infectious and chronic diseases increasingly crosses political and geographic boundaries. Curricula in the MPH program trains students in global and multicultural issues to prepare them to work with diverse populations, both domestically and internationally.

Health promotion professionals are trained in: epidemiology and biostatistics, community health analysis, health-related behavior and the behavior change process, educational processes, program planning, implementation and evaluation, environmental health, research, administration, health communication and social marketing, community mobilization, and policy and advocacy.

One graduate degree is offered through the Department of Health Science: the Master of Public Health—MPH.

Public Health—MPH

The most recognized professional credential in public health practice and leadership, the master of public health (MPH) is a practice-based degree that enables students to gain knowledge basic to public health.

Although public health is a broad, multidisciplinary profession, the MPH program at BYU has an emphasis in global health promotion.

The average length of time required to complete the MPH program is two years, depending on course load and previous academic training or professional activity.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: completed BYU Application for Admission to Graduate Study. Include all relevant work experience on the application. Of the three required letters of recommendation, only one may be written by a faculty member in the Department of Health Science.
- Entrance examinations: Graduate Record Examination (GRE) and official TOEFL examination results from persons whose first language is not English, 213 (paper-based 550) with no subscore lower than 18 (paper-based test 50).
- Prerequisite: baccalaureate or higher-level degree from an accredited U.S. university, or the equivalent from a university outside the U.S., with a GPA of 3.0 in the last 60 semester hours of course work.
- Statement of professional interest and related goals in public health and global health promotion not to exceed 1,000 words. Include the following: your preparation and background for the program to which you are applying; special emphasis you hope to pursue; basic reasons for your choice of career; specific qualities and talents that could enhance success in your career; research interests; professional goals; and any additional reasons for applying to the MPH program.

Requirements for Degree.

- Credit hours (49): 33 hours of required courses; 7 hours of elective credits; 6 hours of fieldwork

(300 contact hours); and 3 hours for the graduate project.

- Required core courses: see department.
- Requirements for the fieldwork experience and graduate project are determined by the student's graduate committee and are based on prior education, experience, and present professional interests.
- Examinations: oral defense of fieldwork experience, graduate project, and peer-reviewed paper.

FINANCIAL ASSISTANCE

Graduate teaching or research assistantship positions may be available for qualified students.

RESOURCES AND OPPORTUNITIES

The Department of Health Science is housed in the Richards Building. Students have access to a nearby open computer lab that houses approximately 30 computers equipped with a range of software including MS Office, Corel Suite, Netscape, Internet Explorer, Minitab, SAS, SPSS, and other course-specific software. The lab has two printers. In addition, computers are located in the graduate student office.

Also available to MPH students is the 3-million-volume Harold B. Lee Library, which provides seating to 4,000 students, including workstations for graduate students. Most key public health journals are available at the Lee Library. Students have access to the Health Research and Technology Lab (HRTL) for research or other projects related to the fieldwork experience and graduate project. Founded by the department, the HRTL is housed within the College of Health and Human Performance Research Laboratory complex.

For a more detailed description of the graduate program requirements, send for a copy of the department's MPH brochure.

COURSE DESCRIPTIONS

600. Foundations of Public Health and Health Promotion. (3)

Global perspectives of public health and health promotion. Essential public health services, public health organizations, and current issues in global health promotion.

602. Principles of Epidemiology. (3)

Principles and methods used in epidemiologic research, including study design, confounding, chance, bias, causality, and descriptive and analytic methods.

603R. Special Topics in Public Health. (1-7)

Seminar exploring current global health issues.

604. Principles of Biostatistics. (3)

Basic concepts of biostatistics and their applications and interpretation. Topics include descriptive statistics, graphics, diagnostic tests, probability distributions, inference, regression, and life tables.

606. Environmental Health Sciences. (3)

Environmental risks for human disease. Contributions of physical and biological factors and social, economic, and political determinants relative to sustainable development and promotion of health.

607. Public Health Administration. (3)

Trends, practices, and issues in public health administration, emphasizing organizational theory, administrative management, supervisory and legislative processes, and conflict resolution from global perspectives.

608. Determinants of Health Behavior. (3)

Psychological, social, and cultural determinants of health behavior. Introducing health behavior theories and applying behavior change models to program development.

612. Program Planning and Evaluation. (3)

Various program planning and implementation methods, theories, and skills, including needs assessment, priority settings, program development, evaluation, and budgeting.

614. Health Promotion Interventions 1. (3)

Micro-interventions: curriculum and the educational process, group dynamics, training models, consultation, and counseling, including theories used in health education and adult learning.

615. Health Promotion Interventions 2. (3)

Macro- or population-based interventions, including mass communication, policy and legislation, media advocacy, social marketing, and community mobilization.

618. Survey and Research Methods. (3)

Designing, administering, and analyzing data collection instruments for research and evaluation in public health. Quantitative and qualitative methods.

619. Infectious and Chronic Disease Prevention and Control. (3)

Public health solutions to the leading causes of chronic and infectious disease mortality in the United States and the world.

640. Grant Writing. (2)

For students who are seeking philanthropic, federal, and other sources of funding.

660. Substance Abuse. (2)

Epidemiology and etiology of global tobacco, alcohol, and illicit drug use. Exploring educational, clinical, and public policy solutions.

662. Injury Prevention. (2)

Epidemiology and interventions for unintentional and intentional injuries, emphasizing intervention effectiveness (including disaster preparedness and response).

664. Social Context of Public Health. (2)

Interface between the culture-specific understanding of disease and the interventions needed to address health problems in culturally diverse settings.

668. Health and Aging Process. (2)

Advanced theories of the normal and pathological aging process, including health promotion and extension of life.

673. Maternal and Child Health Issues. (2)

National and global determinants and indicators of maternal and child health. Public health program to improve maternal and child health.

676. Malnutrition and Obesity. (2)

Overview of under- and over-nutrition as global health problems, emphasizing social determinants, health impacts, and current health promotion strategies.

678. Advanced Epidemiology. (3)

Statistical techniques for analyzing data from epidemiology, environmental health, biomedical, and other public health-related research, including linear and logistic regression and life tables.

696R. Independent Studies. (1-3)**697R. Field Experience for First-Year Students. (1-6)**

Prerequisite: HLth 600, 602, 604, 652, 654, 692.

Domestic U.S. and international field experiences in public health settings that expose students to public health strategies and interventions in multicultural settings.

698R. Graduate Project for Second-Year Students. (3)

Prerequisite: HLth 697R.

Applied community-based project in public health demonstrating acquired skills and knowledge and partially completing the MPH capstone experience.

699R. Master's Thesis. (1-9)**FACULTY**

BARNES, MICHAEL D., *Professor.* PhD, Southern Illinois University, 1993. Community Health Education Methods.

COLE, EUGENE C., *Professor.* DrPH, University of North Carolina, 1983. Environmental Health.

DEARDEN, KIRK A., *Associate Professor.* DrPH, MPH, University of Alabama, Birmingham. International Health.

HAWKS, STEVEN, *Associate Professor.* EdD, Brigham Young University, 1990. International Health.

HILL, SUSAN, *Assistant Professor.* PhD, Southern Illinois University, 1997. School Health; Adolescent Health.

KARREN, KEITH J., *Professor.* PhD, Oregon State University, 1975. Behavioral Health.

LINDSAY, GORDON B., *Professor.* PhD, Ohio State University, 1984. Community Health; Substance Abuse.

MERRILL, RAY M., *Associate Professor.* PhD, Arizona State University, 1994. MPH, Harvard University, 1995. Research Methods; Statistics; Epidemiology.

NEIGER, BRAD L., *Professor.* PhD, University of Utah, 1991. Community Health; Social marketing.

NOVILLA, M. LELINNETH, *Associate Professor.* MD, University of the City of Manila, the Philippines, 1990. MPH, University of Utah, 1999. International Health; Chronic and Infectious Diseases.

PAGE, RANDY M., *Professor.* PhD, Southern Illinois University, 1982. International Health; Adolescent and School Health.

THACKERAY, ROSEMARY, *Assistant Professor.* PhD, University of Utah, 2000. MPH, University of Utah, 1996. Community Health; Health Communication; Social Marketing.

THYGERSON, ALTON L., *Professor.* EdD, Brigham Young University, 1969. Injury Prevention; Emergency Care.

HISTORY

Chair: Neil L. York

Graduate Coordinator: Mary Stovall Richards

306 KMB

Provo, UT 84602-4446

(801) 422-6138

THE PROGRAM OF STUDIES

The History Department has a small but high-quality graduate program. It aims to strengthen the credentials of those teaching history and to produce professional historians.

The strengths of the program are U.S. (especially western American) and European history. This reflects the research interests of departmental faculty and the holdings of the university's Harold B. Lee Library.

One degree is offered through the History Department: History—MA.

The department admits twelve students to the graduate program each year. The average length of the MA program is two years.

History—MA

The MA degree is offered for those students who desire to do further historical study and research beyond the bachelor's degree. The advantages of this degree include: opportunities in public history, access to careers in business, greater promotional and employment opportunities for secondary teachers, qualification for teaching positions in many junior colleges, and useful preparation for doctoral work in history, law, government, international affairs, and other relevant fields.

Areas of emphasis within the MA: American History or European History.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: submit at least three letters of recommendation from persons familiar with

applicant's academic qualifications, preferably professors, and a sample of applicant's work. Send directly to the department a research paper such as a senior seminar paper. Students whose native language is not English must pass the TOEFL examination at the 85th percentile or higher (a score of 580). Minimum required GPA is 3.2 for last 60 hours. Consult the History Department for further details before applying for admission.

- Entrance examination: GRE general test.
- Prerequisite: undergraduate degree in history or equivalent.

Requirements for Degree.

- Course requirements:
American History Emphasis (30 hours): minimum 24 course work hours including Hist 587, 651, 652, 653, 690R; plus 6 thesis hours (699R).
European History Emphasis (30 hours): minimum 24 course work hours including Hist 587, 661, 662, 663, 690R; plus 6 thesis hours (699R).
- Minor: optional as approved by graduate committee.
- Thesis.
- Examination: oral defense of thesis.

FINANCIAL ASSISTANCE

A small tuition grant can be provided to graduate students in the History Department. In addition, a teaching assistantship of 10 to 15 hours may be available to qualified graduate students.

RESOURCES AND OPPORTUNITIES

Center for Studies of the Family.

This interdisciplinary research center focusing on studies related to all aspects of the family encourages and supports research on family-related topics ranging from prenatal development to problems of aging.

Women's Research Institute.

Initially established in 1978, the

Women's Research Institute became a part of the College of Family, Home, and Social Sciences in September 1983. Since then the institute has awarded research fellowships to upper-division and graduate students for conducting research on women and women's issues in amounts up to \$500 annually for selected projects. Faculty grants became available through the institute in 1984.

Joseph Fielding Smith Institute for Church History.

The institute's purpose is to study the Latter-day Saint past. Its personnel are historians whose primary work is writing and publishing for professional and general Church audiences. The institute also seeks to facilitate the research of other Church history scholars by providing limited support for research and publication.

Museum of Peoples and Cultures.

This museum offers unique research opportunities for students and faculty, several of whom have research offices in the museum. Located south and west of campus in Allen Hall, the museum holds a number of important archaeological and ethnographic collections that have not been systematically analyzed and reported. These collections, which represent Utah Valley, the American Southwest, and Mesoamerica, as well as other parts of the world, provide material for thesis topics, professional publications, and academic credit.

Charles Redd Center for Western Studies.

Established in 1972 under an endowment from Charles Redd, a prominent Utah stockman and philanthropist, the center is charged with promoting the study of all aspects of the American West. The center publishes a monograph series, assists faculty and student research through grants and fellowships, and sponsors lectureships each year.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

500R. Special Studies in History. (1–3)

Directed by visiting or resident faculty. Check with department secretary for current topics and instructor.

564. Sources and Problems in Western U.S. History. (3)

Lecture, discussion, readings, and student writing on historians' sources and points of view regarding the American West.

565. Sources and Problems in Latter-day Saint History. (3)

Lecture, discussion, readings, and student writing on historians' sources and points of view regarding Latter-day Saint history.

566. Sources and Problems in Utah History. (3)

Lecture, discussion, readings, and student writing on historians' sources and points of view regarding Utah history.

587. Philosophies of History. (3)

Fundamental problems and types of historical analysis and interpretation, philosophies of history, and work of outstanding historians.

590R. Special Topics. (3)

Western American, religious, family, Asian, Latin American, and Near Eastern history.

598R. Special Readings in History. (1–3)**651. Sources and Problems in Early America.** (3)

Through the seventeenth and eighteenth centuries.

652. Sources and Problems in Nineteenth-Century America. (3)

Through the nineteenth century.

653. Sources and Problems in Twentieth-Century America. (3)

Through the twentieth century.

661. Sources and Problems in Medieval, Renaissance, and Reformation History. (3)

Selected topics in medieval, Renaissance, and Reformation history.

662. Sources and Problems in Early Modern Europe, 1550–1789. (3)

Selected topics in early modern Europe, 1550–1789. Part of the core curriculum for graduate students.

663. Sources and Problems in Modern Europe, 1789–Present. (3)

Selected topics in nineteenth- and twentieth-century Europe, 1789–present.

690R. Graduate Seminar in History. (1–3)**695R. Coordinated Research.** (3)

Student research directed by faculty member on topic of mutual interest. Prior approval of instructor required. Research assistants must do additional work for credit.

696R. Practicum in Public History and Family History. (1–5)

College credit for work in local archives, museums, and related areas. See department chair for openings available and to determine hours of credit.

699R. Master's Thesis. (1–9)**798R. Special Readings in History.** (1–2)**799R. Doctoral Dissertation.** (1–18)

FACULTY

ALEXANDER, THOMAS G., *Professor.*

PhD, University of California, Berkeley, 1965. Western American; Environmental; Latter-day Saint History, Utah History.

BOHAC, RODNEY D., *Associate Professor.* PhD, University of Illinois, 1982. Russia; Rural Europe.**BROWN, KENDALL W.,** *Professor.* PhD, Duke University, 1979. Latin America; Colonial Economic; Spain.**BUCKLEY, JAY H.,** *Assistant Professor.* PhD, University of Nebraska, 2001. American West, Native American.**CANNON, BRIAN Q.,** *Associate Professor.* PhD, University of Wisconsin, 1992. American Rural History.**CHOATE, MARK I.,** *Assistant Professor.* PhD, Yale University, 2002. Modern Italy; European Culture and Politics.**DAYNES, KATHRYN,** *Associate Professor.* PhD, Indiana University, 1991. American Family; Nineteenth Century Social History.**DURSTELER, ERIC R.,** *Assistant Professor.* PhD, Brown University, 1999. Late Medieval Italy; Mediterranean.**FARMER, J. MICHAEL,** *Assistant Professor.* PhD, University of Wisconsin, Madison, 2001. Early Medieval China; Chinese Cultural/Intellectual.**FOX, FRANK W.,** *Professor.* PhD, Stanford University, 1973. Modern U.S.; U.S. Cultural History.**GARCIA, IGNACIO,** *Professor.* PhD, University of Arizona, 1995. American, Mexican-American History.**GRANDSTAFF, MARK,** *Associate Professor.* PhD, University of Wisconsin, Madison, 1992. American Military; Diplomatic.**GREEN, ARNOLD H.,** *Professor.* PhD, University of California, Los Angeles, 1973. Modern Near East.**HAMBLIN, WILLIAM,** *Associate Professor.* PhD, University of Michigan, 1985. Middle East.**HARLINE, CRAIG H.,** *Professor.* PhD, Rutgers University, 1986. Early Modern Europe.**HARRELD, DONALD J.,** *Assistant Professor.* PhD, University of Minnesota, 2000. European Economic History, Early Modern Europe.**HOLMES, BLAIR R.,** *Associate Professor.* PhD, University of Colorado, 1972. European Family; Social History.**KERRY, PAUL E.,** *Assistant Professor.* DPhil, Oxford University, England, 1998. German Studies; Jewish Studies; Intellectual History.**KIMBALL, RICHARD I.,** *Assistant Professor.* PhD, Purdue University, 1999. United States Social, Sports, and Leisure.**MASON, MATTHEW E.,** *Assistant Professor.* PhD, University of Maryland, 2002. U.S. Slavery; Political; Republic.

MILLER, SHAWN W., *Associate Professor*. PhD, Columbia University, 1997. Latin America, Colonial Brazil.

MURDOCK, MICHAEL G., *Assistant Professor*. PhD, University of Michigan, 1998. Modern Asia; China; Nationalism.

PIXTON, PAUL B., *Professor*. PhD, University of Iowa, 1972. Medieval Europe.

PULSIPHER, JENNY HALE, *Assistant Professor*. PhD, Brandeis University, 1999. U.S. Colonial; Women's; Native American.

RICHARDS, MARY STOVALL, *Associate Professor*. PhD, University of Chicago, 1983. Family; Nineteenth-Century America—South; Twentieth-Century Southern Novelists.

RUGH, SUSAN SESSIONS, *Associate Professor*. PhD, University of Chicago, 1993. Nineteenth-Century U.S.

SHUMWAY, JEFFREY M., *Assistant Professor*. PhD, University of Arizona, 1999. Latin America, Argentina.

THORP, MALCOLM R., *Professor*. PhD, University of Wisconsin, Madison, 1972. Early Modern; Modern Britain.

UNDERWOOD, GRANT, *Professor*. PhD, University of California, Los Angeles, 1988. U.S. Religious; U.S. Intellectual.

WALKER, RONALD W., *Professor*. PhD, University of Utah, 1977. American Religious History; Utah History.

WESTOVER, V. ROBERT, *Assistant Professor*. PhD, Arizona State University, 1979. Family; American Indian.

WHITE, KENNETH R., *Assistant Professor*. PhD, University of Wisconsin, Madison, 1998. Early East Asia; Buddhism.

YORK, NEIL L., *Professor*. PhD, University of California, Santa Barbara, 1978. Colonial History; Technology; American Revolution.

HUMANITIES, CLASSICS, AND COMPARATIVE LITERATURE

Chair: V. Stanley Benfell III

Graduate Coordinator: Richard C. Lounsbury

3010 JKHB

Provo, UT 84602-6120

(801) 422-4448

THE PROGRAM OF STUDIES

Widely used in the Renaissance, the term *humanities* (*humanitas* or *studia humanitatis*) refers to the study of human intellectual and artistic creativity. Humanities is both a general academic category (inclusive of literature, history, philosophy, and the history and criticism of art and music) and a discipline in its own right with a methodology for the critical study of intellectual history and aesthetics. The interdisciplinary humanistic fields that the department comprises—humanities, classics, and comparative literature—offer students unusual latitude in pursuing graduate education in the humanities, disciplined by insistence on substantial foreign language skills, competence in critical theory and practice, and the development of scholarly discipline.

One degree is offered through the Department of Humanities, Classics, and Comparative Literature: Comparative Studies—MA. This program admits from ten to twelve students per year. The MA in comparative studies is designed as a two-year program, and most full-time students are able to complete the MA within two years, usually defending the thesis during spring or summer term of the second year.

Comparative Studies—MA

This degree allows for study of the humanities within a comparative context not normally found in single-discipline graduate programs—that is, through interdisciplinary and comparative perspectives that permit

a flexibility and breadth of study, without sacrificing rigor. Graduate students thus learn to combine the synthesizing and analytical skills of various humanistic disciplines in order to develop interdisciplinary and comparative approaches to the materials of human culture.

Accordingly, program courses expand knowledge in humanistic disciplines and provide intense opportunities to develop wide-ranging research and writing.

Admission and Entry.

- Semesters of entry and application deadlines: fall, March 1.
- Entrance examination: GRE general test.
- Prerequisite: baccalaureate degree in interdisciplinary humanities, comparative literature, classics, English or a foreign language, art history, history, music, or philosophy; proficiency in at least one foreign language, demonstrated normally by completion of one upper-division literature course in the language.

Requirements for Degree.

- Credit hours (33): minimum 27 course work hours plus 6 thesis hours.
- Required courses: CmpSt 610, 615; two courses from CmpSt 620R, 625R, 630R, 640R, 650R, 660R, 670R.
- Electives: five courses in humanities, classics, comparative literature, art history, musicology, philosophy, history, film, or literature (up to 6 hours may be in upper-division undergraduate classes where equivalent graduate classes are not available). One or more of these may be comparative studies seminars, which, in addition to the two required, are chosen in consultation with the student's academic advisor and are subject to approval of the department's graduate council.
- Special field: proficiency in a second foreign language or in a discipline other than literature (e.g., art history, musicology, philosophy, film, history, etc.), demonstrated by course work or examination, as determined by the student's

graduate committee and the program's graduate council.

- Completion of a reading list, which is determined in consultation with a faculty advisor, subject to approval of the department's graduate council.
- Thesis.
- Examination: final oral examination on the reading list; thesis defense.

FINANCIAL ASSISTANCE

Aid is available in the form of full or partial tuition grants, teaching assistantships, internships, and (for advanced students) some student instructorships. Upon admission to the respective programs, candidates will be considered for all of these possibilities based upon merit and availability of department resources. Financial aid is limited to two years.

RESOURCES AND OPPORTUNITIES

The Department of Humanities, Classics, and Comparative Literature utilizes the Humanities Research Center and the Reading-Writing Center for the College of Humanities:

The **Humanities Research Center** provides an array of technological tools, resources, and expertise to foster quality research and scholarship in the College of Humanities. The center is especially active in the production of teaching and research materials. In addition to computer and audio equipment, the center has a variety of video capabilities and in the past few years has become a world leader in computer-assisted language instruction and translation. The department also owns CD ROM databases for classical Greek and Latin texts, the *Thesaurus Linguae Graecae* and *Thesaurus Linguae Latinae*, as well as the complete works of many modern authors.

Faculty from the department currently serve as officers in the Classical Association of the Midwest and South (CAMWS), the

International Comparative Literature Association (ICLA), the National Association of Humanities Educators (NAHE), the American Conference on Romanticism, and the Society for the Advancement of Scandinavian Study (SASS). In addition, the journals *Scandinavian Studies* and *Prisms: Essays in Romanticism* are edited by department faculty members, assisted by graduate students from the department.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletins on comparative studies.

COURSE DESCRIPTIONS

Classics

690R. Seminar in Classics. (3)

699R. Master's Thesis. (1-9)

Comparative Literature

590R. Directed Readings. (1-3)

Prerequisite: graduate coordinator's consent.

610. Methods of Study in Comparative Literature. (3)

Introduction to critical study of literature: critical methods and bibliography; linguistic foundations of literature; textual scholarship; literary history, transmission, theory, and criticism; genre theory; literature and other disciplines.

620R. Studies in Periods and Movements. (3)

Prerequisite: CmLit 610 or concurrent registration.

Various literary periods, movements, etc., and problems of periodization. Topics vary.

630R. Studies in Literary Genres. (3)

Prerequisite: CmLit 610 or concurrent registration.

Various genres (e.g., novel, epic, tragedy, lyric) and problems of genre. Topics vary.

640R. Studies in Themes and Types. (3)

Prerequisite: CmLit 610 or concurrent registration.

Major literary themes (e.g., Faust, Don Juan, Ulysses, Arthur), types, motifs, and problems of literary typology. Topics vary.

650R. Studies in Literary Relations. (3)

Prerequisite: CmLit 610 or concurrent registration.

Interrelations of national literatures and figures and of literature with other areas of knowledge (art, history, law, psychology, music, etc.). Topics vary.

660R. Studies in Literary Theory. (3)

Prerequisite: CmLit 610 or concurrent registration.

Critical theories of literature and literary analysis. Topics vary.

670R. Tutorial Internship. (3)

Prerequisite: graduate coordinator's consent.

Individual research in cooperation with graduate faculty member, generally on problems relating to a specific national literature.

690R. Seminar in Comparative Literature. (3)

Prerequisite: CmLit 610.

Problems in comparative literature. Course content varies from semester to semester.

699R. Master's Thesis. (1-9)

Prerequisite: graduate coordinator's consent.

Comparative Studies

610. Introduction to Contemporary Critical Thinking. (3)

Prerequisite: CmLit 310, Hum 350, Clsscs 420; or equivalents.

Broad interdisciplinary perspective on contemporary literary and aesthetic theory and critical methods as these relate to study of literature and the arts.

615. Colloquium in Comparative Studies. (3)

Prerequisite: CmpSt 610.

Introduction to a variety of critical methods through presentations of work in progress by graduate and visiting faculty. Topics vary.

620R. Studies in Periods and Movements. (3)

Prerequisite: CmpSt 610.

Literature, philosophy, and/or the arts of a particular period or movement in cultural history. Problems of periodization. Topics vary.

625R. Area Studies. (3)

Prerequisite: CmpSt 610.

Literature, philosophy, and/or the arts of a particular geographical area. Topics vary.

630R. Studies in Genres and Forms. (3)

Prerequisite: CmpSt 610.

Varied topics include epic, tragedy, comedy, narrative, historiography, and film.

640R. Studies in Themes and Types. (3)

Prerequisite: CmpSt 610.

Varied topics include Eden, Arthur, Don Juan, Faust, Don Quixote, Ulysses, Troy.

650R. Interrelations of the Arts. (3)

Prerequisite: CmpSt 610.

Interrelations between various art forms, especially literature and one other (literature and art, literature and film, literature and music, etc.). Topics vary.

660R. Critical Theory and Methods. (3)

Prerequisite: CmpSt 610.

Theoretical and practical criticism; problems in critical theory. Varied topics include aesthetics, cultural theory, aspects of contemporary theory.

670R. Studies in the Classical Tradition. (3)

Prerequisite: CmpSt 610.

Cultures of classical antiquity and their influence on later cultural history. Topics vary.

Greek

Graduate-level Greek courses are currently being developed. Please see the department for details.

Humanities

595R. Directed Readings. (1-3)

Prerequisite: graduate coordinator's consent.

610. Research Methods in Humanities. (2)

Prerequisite: instructor's consent.

Use of the library and secondary sources.

615. Writing the Thesis Prospectus. (1)

Prerequisite: Hum 610.

Design and development of MA thesis prospectus.

620R. Studies in Periods and Movements. (3)

Interdisciplinary study of literature, philosophy, and the arts of a particular period or movement in cultural history. Problems of periodization. Topics vary.

625R. Area Studies in the Humanities. (3)

Interdisciplinary study of literature, philosophy, and the arts of a particular geographical area. Topics include American, Latin American, and Asian humanities. Topics vary.

630R. Genres and Forms in the Humanities. (3)

Interdisciplinary study of genres and forms. Topics include epic, tragedy, narrative, historiography, film, relationship of text and music. Topics vary.

640R. Themes in the Humanities. (3)

Interdisciplinary study of themes. Varied topics include Eden, Arthur, Don Juan, Faust, Don Quixote, Ulysses, Troy.

660R. Critical Theory and Methodology. (3)

Theoretical and practical criticism; problems in critical theory. Topics include aesthetics, interrelations of the arts, cultural theory, aspects of contemporary theory, and models of cultural history.

690R. Seminar in the Humanities. (3)

Interdisciplinary study of problems and major figures in the humanities. Topics vary.

699R. Master's Thesis. (1-9)

Prerequisite: graduate coordinator's consent.

Latin

620R. Latin Poets. (3)

625R. Latin Prose Writers. (3)

640R. Studies in Genre. (3)

650R. Period Studies. (3)

690R. Seminar in Latin. (3)

FACULTY

BENFELL, V. STANLEY, *Associate*

Professor. PhD, New York University, 1994. Comparative Literature: Medieval and Renaissance Literature (Italian, French, and English).

BURNS, MARK K., *Assistant Professor*.

PhD, Harvard University, 2003. Humanities: Nineteenth-Century American Literature; Colonial Latin American Literature; African Literature; Cultural Theory.

BUTLER, TERRELL M., *Associate*

Professor. PhD, Cornell University, 1979. Humanities and Comparative Literature: Seventeenth-Century France and England; Greek Literature; Rhetorical Criticism.

CALL, MICHAEL J., *Professor*. PhD,

Stanford University, 1982. Humanities: Eighteenth- and Nineteenth-Century French Culture; Romanticism.

CHRISTENSON, ALLEN J., *Assistant*

Professor. PhD, University of Texas, Austin, 1998. Humanities: American (Colonial and Federalist), Native American, and Mesoamerican (especially Precolumbian) Culture.

DUCKWITZ, NORBERT H. O., *Assistant*

Professor. PhD, University of Colorado, 1987. Classics: Latin Poetry; Greek and Roman Mythology.

- GREEN, JON D.**, *Professor*. PhD, Syracuse University, 1972. Humanities: Interrelations of the Arts; Modernism; Multimedia.
- HALL, JOHN F.**, *Professor*. PhD, University of Pennsylvania, 1984. Classics: Roman History, Religion, and Law; Latin Literature.
- HANDLEY, GEORGE B.**, *Associate Professor*. PhD, University of California, Berkeley, 1995. Humanities: Nineteenth- and Twentieth-Century American, Caribbean, and Latin American Culture; Ethnic Arts; Cultural Theory
- KRAMER, T. NATHANIEL**, *Assistant Professor*. PhD, University of California, Los Angeles, 2004. Humanities: Twentieth-Century Literature; Scandinavian Studies; European Modernism; Literary Theory.
- LOUNSBURY, RICHARD C.**, *Professor*. PhD, University of Texas, Austin, 1979. Classics and Comparative Literature: Early Imperial Literature; Rhetoric; Classical Tradition.
- MACFARLANE, ROGER T.**, *Associate Professor*. PhD, University of Michigan, 1991. Classics: Republican and Augustan Latin Literature.
- PARRY, JOSEPH D.**, *Associate Professor*. PhD, University of Utah, 1995. Humanities: Medieval and Renaissance Studies (especially English, German, Italian).
- PEEK, CECILIA M.**, *Assistant Professor*. PhD, University of California, Berkeley, 2000. Classics: Hellenistic History; Roman Imperial History; Greek and Latin Literature.
- PEER, LARRY H.**, *Professor*. PhD, University of Maryland, College Park, 1969. Comparative Literature: Romanticism; Theory.
- SEDERHOLM, CARL H.**, *Assistant Professor*. PhD, University of Utah, 2002. Humanities: Early American Culture; American Gothic; American Religion.
- SHUMWAY, LARRY V.**, *Professor*. PhD, University of Washington, 1974. Humanities: Music; Asian Humanities; Ethnomusicology.

- SONDRUP, STEVEN P.**, *Professor*. PhD, Harvard University, 1974. Comparative Literature: Nineteenth- and Twentieth-Century Literature.
- SOPER, KERRY D.**, *Assistant Professor*. PhD, Emory University, 1998. Humanities: American Social and Cultural History; Popular Visual Arts; Satire.
- SOWELL, DEBRA H.**, *Assistant Professor*. PhD, New York University, 1990. Humanities: Performance Studies; Dance History and Criticism; European Romanticism.
- STANFORD, CHARLOTTE**, *Assistant Professor*. PhD, Pennsylvania State University, 2003. Medieval Studies; Art History; Gothic Architecture; Gothic Revival.
- TATE, GEORGE S.**, *Professor*. PhD, Cornell University, 1974. Humanities and Comparative Literature: Medieval Studies (Scandinavian, German, English; Twelfth-Century Renaissance).
- TUELLER, MICHAEL**, *Assistant Professor*. PhD, Harvard University, 2003. Hellenistic Culture; Greek Poetry; Greek Religion.

INSTRUCTIONAL PSYCHOLOGY AND TECHNOLOGY

Chair: Andrew S. Gibbons

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THE PROGRAM OF STUDIES

Instructional psychology and technology is a branch of educational study concerned with the ideas, principles, and theories related to the improvement of learning. Students of instructional psychology and technology seek to identify and implement improvements in instruction while endeavoring to understand the principles that govern these improvements. These solutions are implemented in educational settings in public schools and universities, business, industry, the government, the military, the community, and the church.

The objective of the Department of Instructional Psychology and Technology is to enhance learning by improving instruction and teaching. In partnership with others, the department will (1) search for knowledge that improves instruction, (2) apply knowledge and technology to solve instructional problems, and (3) empower students with knowledge and skills in instructional development, research, evaluation, and measurement.

Students in each degree program are required to take basic courses in the following areas of disciplined inquiry in instruction: design and development, research, measurement, and evaluation. They are also required to acquire collateral tools from other disciplines such as statistics, computer science, human resource management, and communications. Specialized courses are offered to deepen the candidate's knowledge and theoretical sophistication.

Professional skills are developed through extensive project and internship experiences offered in the schools, church, home, and community.

The Department of Instructional Psychology and Technology offers two degrees: Instructional Psychology and Technology—MS and Instructional Psychology and Technology—PhD.

Approximately thirty students are enrolled in the MS program and fifty students in the PhD programs. Full-time students should be able to complete an MS degree within approximately two years; full-time PhD students with an MS in instructional psychology and technology should be able to complete the PhD within three years.

Master's and doctoral students in other departments wishing to take a minor in instructional psychology and technology should counsel with the instructional psychology and technology faculty member appointed to their graduate committee in selecting the appropriate courses (9 hours of course work required for a master's minor, 12 hours for a doctoral minor).

Instructional Psychology and Technology—MS

The MS program prepares students to assume professional positions in instructional design and evaluation or to pursue a doctorate in these fields. All MS students will be required to complete at least 6 credit hours each fall and winter semester to remain enrolled in the program.

Admission and Entry.

Fall semester, spring and summer term entry only.

- Semesters of entry and application deadlines: all application materials must be completed and on file in the Office of Graduate Studies by February 1 to be considered for admission to graduate study the coming spring or summer term or fall semester.

- Application requirements: letter of intent and three letters of recommendation.
- Entrance examination: GRE general test. When taking GRE, use institutional number R 4019. Application will not be considered without GRE scores.
- Prerequisite: (3 hours) EdLF 517 or Engl 316 (must be completed by end of first year in program).

Requirements for Degree.

- Credit hours (minimum 36): 30 course work hours plus 6 thesis hours (IP&T 699R) or 6 project hours (698R).
- Required courses (17 hours): IP&T 515R (Microcomputers in Schools), 550, 564, 652, 661.
- Emphasis: 9 hours to be determined in consultation with graduate committee.
- Internship: 3 hours (IP&T 599R).
- Seminar: 1 hour (IP&T 690R).
- Thesis: 6 hours (IP&T 699R); or project: 6 hours (IP&T 698R).
- Examinations: oral defense of thesis or project.

Instructional Psychology and Technology—PhD

The PhD program prepares students to assume positions of leadership in instructional design and evaluation. Graduates may take positions as faculty at colleges and universities, direct other instructional designers in private or public institutions, or work as an individual consultant.

The Instructional Psychology and Technology doctoral program is designed for full-time study. All PhD students will be required to complete at least 9 credit hours each fall and winter semester to remain enrolled in the program. According to university policy, this means that enrolled doctoral students will work no more than 20 hours per week.

Admission and Entry.

Fall semester, spring and summer term entry only.

- Semesters of entry and application deadlines: all application materials must be completed and on file in the Office of Graduate Studies by February 1 to be considered for

admission to graduate study the coming spring or summer term or fall semester.

- Application requirements: letter of intent and three letters of recommendation.
- Entrance examination: GRE general test. When taking GRE use institutional number R 4019. Application will not be considered without GRE scores.
- Prerequisite: (3 hours) EdLF 517 or Engl 316 or Ling 230 or 330.
- Foreign language and skill requirement: there are two options for completing this requirement depending on area of specialization: (A) Instructional Design and Production and Research and Evaluation specializations (equivalent of at least 15 hours in statistics and computer science); or (B) Second-Language Acquisition specialization (equivalent of at least 15 hours of statistics and computer science and at least intermediate proficiency in a second foreign language, demonstrated by test or by course work completed through the 202 level). This means that students must have two languages in addition to English to complete this specialization. Foreign language, skill, or prerequisite courses must be completed by the end of the first year in the program.

Requirements for Degree.

- Credit hours (minimum 72): 54 course work hours plus 18 dissertation hours (IP&T 799R).
- Required courses (13 hours): IP&T 564, 620, 652, 661.
- Specialization: 18 hours as determined in consultation with graduate committee.
- Internship: 12 hours (IP&T 599R).
- Seminar: 2 hours (IP&T 690R).
- Two projects: 6 hours.
- Residence: at least 9 credit hours each fall and winter semester.
- Examinations: (A) comprehensive written examination; (B) oral defense of dissertation.
- Time limit: all requirements for the doctorate must be completed within an eight-year period.

FINANCIAL ASSISTANCE

Financial assistance is available mainly in the form of paid internships through the Instructional Psychology and Technology Department, other departments within the university, and various agencies external to the university. Limited funds are available for partial tuition scholarships for students with emergency financial needs. Other financial aid is available through the university.

RESOURCES AND OPPORTUNITIES

Instructional psychology and technology utilizes the David O. McKay Education Building for the majority of its classrooms and resource centers.

The school and department provide extensive microcomputer and multi-media facilities for student use. Macintosh and Windows computers are available in various computer laboratories. Most of these computers are connected to the university broad-band network, which provides convenient access to a large number of computer-based software tools, such as SPSS and SAS statistical analysis programs, the university library card catalog, the ERIC index, and the Internet.

For a more detailed description of the graduate program requirements, see the department Web site at www.byu.edu/ipt/.

COURSE DESCRIPTIONS

515R. Instructional Technology in Teaching. (1-3)

Applying computer technology in the public schools; evaluating educational software programs; using computer tools; computer programming in LogoWriter.

550. Empirical Inquiry and Statistics. (6)

Integration of empirical research and statistical analysis in evaluation. Emphasizes designing, conducting, analyzing, reporting, and critically evaluating research studies.

560. Microcomputer Materials Production. (3)

Prerequisite: IP&T 286 or 515R (Microcomputers in Schools); CS 103 or equivalent.

Designing, programming, and debugging educational applications of microcomputers using a high-level computer language.

564. Instructional Design. (3)

Identifying instructional problems; specifying objectives, instructional strategies, and media; analyzing learning outcomes; developing instructional materials and assessment instruments; validating instructional systems.

599R. Academic Internship. (1-6)

Prerequisite: departmental consent.

620. Principles of Learning. (3)

Improving classroom learning through understanding underlying psychological principles and theories.

650. Quantitative Reasoning. (3)

Prerequisite: IP&T 550.

Use of analysis of variance and multiple regression/correlation in analyzing and interpreting results of educational research and evaluation.

652. Assessing Learning Outcomes. (4)

Prerequisite: IP&T 550.

Selecting and constructing instruments and procedures for assessing affective, behavioral, and cognitive outcomes of education.

654. Computers in Educational Measurement. (2-4)

Prerequisite: IP&T 652 or instructor's consent.

Types of computerized measurement and assessment methods and item forms, as well as their development, delivery, and statistical theory.

655. Instructional Print Design and Production. (2)

Prerequisite: IP&T 564.

Applying instructional and visual design principles to produce instructional print materials, using computer-based tools.

656. Qualitative Inquiry in Education. (3)

Introduction emphasizing assumptions made, methods used, and standards for judging qualitative studies.

657R. Measurement Project. (1-3)

Prerequisite: IP&T 550, 652.

Designing, conducting, and reporting a comprehensive measurement project.

660. Authoring of Interactive Video. (3)

Prerequisite: IP&T 560, 564.

Designing, developing, producing, and authoring intelligent, interactive video courseware. Budgets, project steps, equipment systems, and authoring.

661. Introduction to Evaluation in Education. (3)

Introduction to the nature, purposes, and functions of educational evaluation in making judgments about teachers, instructional materials, academic programs, curricula, and school systems.

664. Advanced Instructional Design. (3)

Prerequisite: IP&T 564.

Advanced laboratory in instructional system design, production, formative evaluation, packaging, and implementation. Systematic critical analysis of all phases of development.

665. Instructional Visual/Video Production. (4)

Recommended: IP&T 515R or equivalent.

Designing, producing, and integrating audio, visual, and video instructional materials. Applying digital and other technologies in audio recording and mixing, and photographic and video production.

667R. Evaluation Project. (1-3)

Prerequisite: IP&T 558.

Designing, conducting, and reporting a comprehensive project in evaluation.

674R. Inquiry Methods. (1-3)

Prerequisite: IP&T 550 or instructor's consent.

Specific inquiry strategies for researching practical educational problems. Strategy studied varies from section to section.

- Quasi-Experimental Studies
- Cost-Benefit Analysis in Education
- Meta-Analysis
- Theory Building and Modeling in Education

677R. Research Project. (1-3)

Prerequisite: IP&T 550.

Designing, conducting, and reporting a comprehensive project in research.

682. Project and Instructional Resource Management. (3)

Managing research, development, and evaluation projects in public schools and higher education. Planning, budgeting, supervising, managing personnel, and scheduling.

687R. Development Project. (1-3)

Prerequisite: IP&T 564.

Designing, conducting, and reporting a comprehensive project in development.

690R. Seminar. (.5-3)

Check current class schedule for seminar topics.

692R. Advanced Topics. (1-3)

693R. Directed Individual Study. (1-3)

Prerequisite: instructor's consent.

698R. Master's Project. (1-6)

699R. Master's Thesis. (1-6)

750. Research Synthesis and Conceptualization. (3)

Prerequisite: IP&T 550.

Survey of major research problems, questions, and theories that have been investigated in instructional psychology and technology. Preparing critical, integrative synthesis of completed research; conceptualizing problems for further inquiry. Research prospectus required.

752. Measurement Theory. (3)

Prerequisite: IP&T 652.

Classical and modern models for measuring human attributes. Issues related to reliability, validity, item selection, scoring, standard setting, and test equating. Use of item response theory and generalizability theory.

756. Advanced Qualitative Inquiry in Education. (3)

Prerequisite: IP&T 656.

Emerging issues, theories, practices, and problems associated with qualitative inquiry in education.

760R. Advanced Computer-Based Instruction. (3)

Prerequisite: IP&T 560.

Current issues, research, and applications of computer technology in education. Advanced programming.

761. Advanced Evaluation in Education. (3)

Prerequisite: IP&T 661.

Assumptions, theories, practices, and problems associated with educational evaluation.

790R. Advanced Seminar. (1-3)

Check current class schedule for seminar topics.

799R. Doctoral Dissertation. (1-9)

Prerequisite: completion of skill and project requirements.

Formal report and defense of a substantive research topic designed to make an original contribution to knowledge in the field.

FACULTY

ALLEN, STEPHANIE, *Assistant Professor*. PhD, Utah State University, 2003. Instructional Technology.

CAMPBELL, J. OLIN, *Associate Professor*. PhD, Stanford University, 1978. Educational Psychology.

GIBBONS, ANDREW S., *Professor*. PhD, Brigham Young University, 1974. Instructional Technology.

GRAHAM, CHARLES R., *Assistant Professor*. PhD, Indiana University, 2002. Instructional Systems Technology.

INOUE, DILLON K., *Associate Professor*. PhD, Stanford University, 1978. Productivity in Learning.

MERRILL, PAUL F., *Professor*. PhD, University of Texas, Austin, 1970. Second Language Acquisition; Computer Applications to Education.

OSGUTHORPE, RUSSELL T., *Professor*. PhD, Brigham Young University, 1975. Research on Teaching and Learning.

SUDWEEKS, RICHARD R., *Associate Professor*. PhD, University of Illinois, 1978. Educational Measurement and Evaluation.

WILLIAMS, DAVID D., *Associate Professor*. PhD, University of Colorado, 1981. Naturalistic Evaluation; Research.

YANCHAR, STEVEN, *Assistant Professor*. PhD, Brigham Young University, 1997. Philosophy of Science; Learning Cognition.

INTEGRATIVE BIOLOGY

Chair: Larry St. Clair

Graduate Coordinator: Keith A. Crandall

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THE PROGRAM OF STUDIES

The Department of Integrative Biology offers graduate training experiences in a variety of areas, including wildlife biology, conservation biology, ecology, evolutionary biology, systematics, genomics, bioinformatics, and molecular evolution. We integrate approaches from the molecular and genetic levels, through the organismal level to the population and ecosystem level to investigate a variety of questions in these areas. Because of our integrative nature, we have substantial expertise in plant, vertebrate, and invertebrate systems. Our graduate program provides an exceptional graduate community, including master's students, PhD students, and postdoctoral fellows.

The Department of Integrative Biology offers five graduate degree programs: Biological Science Education—MS, Integrative Biology—MS, Wildlife and Wildlands Conservation—MS, Integrative Biology—PhD, and Wildlife and Wildlands Conservation—PhD.

The Department of Integrative Biology has a vibrant graduate program, with over 50 graduate students enrolled each year. Students working toward a master's degree generally complete all requirements within two years. PhD students, however, routinely require from three to four years beyond the MS degree to complete their doctoral program.

Admission and Entry.

All graduate programs in this department have the same admission and entry requirements:

- Semesters of entry and application deadlines: fall, January 31 (U.S. and international).
- Entrance examination: GRE general tests (scores must be submitted with application to be considered for regular admission). Foreign students whose native language is not English must submit TOEFL scores.
- Statement of intent must explicitly state field of interest and career goals.
- Prerequisites: baccalaureate degree in related discipline with research experience.

Applicants are encouraged to communicate with the Department of Integrative Biology graduate secretary for further information or to obtain a copy of the Graduate Student Handbook.

Requirements for MS Degree Programs from Integrative Biology.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours; 20 hours must be in the 500-level series and above (can include 691R, 699R, etc.).
- Required courses: InBio 691R (Graduate Seminar—two semesters); Biol 503 (Graduate Orientation) or equivalent. Additional courses as determined by student's advisory committee and approved by department graduate coordinator.
- Annual progress reviews by advisory committee and graduate committee.
- Presentation of research prospectus to advisory committee.
- Thesis: standard university thesis or journal publication format.
- Examination: (a) oral examination and (b) defense of research.

Requirements for PhD Degree Programs from Integrative Biology.

- Credit hours: minimum 54 credit hours, including 18 hours of dissertation—InBio 799R.
- Required courses: InBio 691R (Graduate Seminar—two semesters); Biol 503 (Graduate Orientation) or equivalent.

ters); Biol 503 (Graduate Orientation) or equivalent. Additional courses as determined by student's advisory committee and approved by department graduate coordinator.

- Students who have earned a master's degree must complete at least 36 credit hours of additional graduate work at BYU beyond the master's degree.
- Annual progress reviews by advisory committee and graduate committee.
- Presentation of research prospectus to advisory committee.
- Dissertation: standard university thesis or journal publication format.
- Examination: (a) comprehensive oral examination: grant proposal and literature review; (b) oral defense of research; and (c) oral defense of dissertation.

Biological Science Education—MS

The biological sciences education degree is designed to prepare students with advanced skills and knowledge for teaching in high schools and colleges. Students opting for this degree may pursue original research or library synthesis projects and present results in either formal thesis or project format. Since all research for this degree is expected to be of publication quality, theses are usually prepared in a form suitable for immediate submission for review by an appropriate scholarly journal. Original curriculum projects should be of a high quality and suitable for use in the public school classroom. This degree is not an alternative teacher certification program.

Integrative Biology—MS

The MS degree in integrative biology is designed to give students an opportunity to develop research projects within a hypothesis-testing framework, with a conceptual focus on some aspect of ecological or evolutionary theory. Projects might include, but are not limited to, studies in population or community

ecology, population or conservation genetics, phylogeography, molecular evolution, bioinformatics, or phylogenetic systematics. Students in any of these areas will present and defend a thesis based on original work. Because all such research is expected to be suitable for publication in peer-reviewed journals, thesis manuscripts are often prepared for immediate submission to an appropriate journal.

Wildlife and Wildlands Conservation—MS

This program emphasizes the scientific method in developing critical thinking and analytical skills applied to conservation and management problems pursuant to wildlife ecology, wildlands, restoration science and/or rangeland ecology. Depending on the emphasis, advanced training in topic specialties may be complimented by courses in statistics, geographical information systems (GIS), soil sciences, model testing, systematics, or advanced ecology. All emphases require original research topics with the results presented in thesis format. This research is expected to be of a publication quality and thesis style best reflecting that of a professional journal, thus facilitating timely submissions for publication. We also encourage formal presentations at professional meetings. All general departmental requirements and deadlines pertain to these programs.

Integrative Biology—PhD

The PhD degree in integrative biology is structured to challenge students to develop intellectual independence. This is demonstrated by designing and implementing a research project that requires substantial work on an important question in ecological or evolutionary theory, then analyzing and synthesizing results in a way that reflects the student's maturation as a scholar. Projects might include, but are not limited to, studies in population or community ecology, population or conservation genetics, phylogeography, molecular evolution, bioinformatics,

or phylogenetic systematics. Students will present and defend a dissertation project that includes chapters to be published as stand-alone manuscripts in appropriate scholarly journals.

Wildlife and Wildlands Conservation—PhD

This program emphasizes the scientific method in developing critical thinking and analytical skills applied to conservation and management problems pursuant to wildlife ecology, wildlands, restoration science and/or rangeland ecology. Depending on the emphasis, advanced training in topic specialties may be complimented by courses in statistics, geographical information systems (GIS), soil sciences, model testing, systematics, or advanced ecology. All emphases require original research topics with the results presented in dissertation format. This research is expected to be of a publication quality and dissertation style best reflecting that of a professional journal, thus facilitating timely submissions for publication. We also encourage formal presentations at professional meetings. All general departmental requirements and deadlines pertain to these programs.

FINANCIAL ASSISTANCE

Teaching and research assistantships are offered on a competitive basis by the department. Tuition assistance is also available for both the MS and PhD degrees.

RESOURCES AND OPPORTUNITIES

BYU Agriculture Station. The station encompasses several sites, all of which support research in basic and applied agriculture. At these facilities, research can be conducted on agriculture crops, shrubs and trees, rangeland forages, and plant interactions with domestic animals.

Ezra Taft Benson Agricultural and Food Institute. The major objective of the Ezra Taft Benson Agriculture and Food Institute is to raise the

quality of life among the people of the world through improved nutrition and enlightened agricultural practices. Research to improve agricultural practices, family nutrition, and appropriate technology is encouraged.

M. L. Bean Life Science Museum. Extensive biological collections are housed in the M. L. Bean Life Science Museum and are available for supervised student research. Curators and their students often conduct fieldwork throughout the U.S., and in many other parts of the world.

Electron Optics Laboratory. In this lab researchers can accomplish all standard electron optics procedures. The laboratory has transmission and scanning electron microscopes equipped with X-ray microanalysis capabilities, plus accessory equipment for freeze-fracture, freeze-drying, and necessary support facilities, including confocal laser scan microscopy.

USDA Forest Service Shrub Science Laboratory. Housed on the BYU campus, this lab supports one of the finest research programs on native shrubs in the world. Here eleven PhD research scientists with adjunct faculty appointments work with BYU faculty members and graduate students. Laboratories, greenhouses, and gardens on campus and around the state support studies on desert shrubs.

DNA Sequencing Facility. The DNA Sequencing Center was established to help researchers process DNA samples efficiently and economically. The center is equipped with an ABI 3730 96-capillary automated sequencer and an ABI 3100 16-capillary machine that run DNA sequences and microsatellite runs. Operated by a faculty director, a full-time manager, a part-time finance person, and a number of undergraduate student assistants, the center is open for use by undergraduates, graduate students, faculty, and, through special arrangements, researchers from outside the univer-

sity. The centralization of equipment and expertise has dramatically reduced the expense of DNA research while increasing the efficiency and quality of the data generated.

Lytle Ranch Preserve. Graduate students are able to do year-round research on desert plants and animals at the Lytle Ranch. This large preserve is located in the moderate desert climate of southwestern Utah.

Opportunities. On the Provo campus are greenhouses, gardens, an arboretum, a small animal vivarium, and a tissue culture room. Laboratory facilities include gas chromatography-mass spectrometers, isotope ratio mass spectrometers, transmission and scanning electron microscopes, ultra centrifuges, visible ultraviolet and infrared spectrophotometers, gas chromatographs, high-performance liquid chromatographs, infrared gas analyzers, atomic absorption spectroscopy, and many other items.

Faculty and graduate students are engaged in a number of significant and interesting research projects, funded both externally and internally. Some of these are: iron uptake by plants; shrub genetics, ecology, and physiology; biochemical ecology; plant and animal systematics; bioinformatics; evolutionary biology; conservation biology; medicinal plants; ethnobotany; photosynthetic rate and water-use efficiency in plants; plant growth regulators; forage research; molecular biology of gene expression in mitochondria; marine and freshwater biology; biological science education; effect of nutrient intake on gene expression; environmental science; structural plant science; plant reproductive biology; conservation of rare species.

For additional information on degree programs and faculty in our department, contact the department office or visit inbio.byu.edu.

COURSE DESCRIPTIONS

Integrative Biology

510. Advanced Plant Taxonomy. (3)
Prerequisite: InBio 230 or equivalent.

Review of taxonomic literature and research methods. One three-day field trip required.

511. Lichenology. (3)

Detailed study of lichens, including classification, morphology, and ecology. Field trip required.

512. Angiosperm Phylogeny. (3)
Prerequisite: InBio 230 or equivalent.

Description, classification, phylogeny, and geographic distribution of flowering plant families.

515. Agrostology: Taxonomy and Ecology of Grasses. (3)
Prerequisite: InBio 230 or equivalent.

Classification and ecology of grasses, emphasizing important forage species.

520. Wildlife and Wetlands Ecology and Management. (1)
Prerequisite: Biol 100, 350, InBio 225, 230. Recommended: InBio 411, 557.

Characterization and interactions of wildlife and plant populations in typical wetlands. Emphasizes ecological functions, maintaining biodiversity, and restoring degraded systems. Field trips required.

525. Animal Disease, Biosecurity, and Zoonoses. (3)
Prerequisite: InBio 380 or instructor's consent.

Principles of animal disease emphasizing prevention, organ systems affected, biosecurity, and zoonotic potential.

541. Aquatic Entomology. (4)
Recommended: InBio 441 or equivalent.

Morphology, classification, biology, and functional ecology of aquatic insects. Field trips required.

546. World Bird Families. (3)
Prerequisite: InBio 446 or instructor's consent.

Distribution, composition, and characteristics of world bird families, using museum specimens.

550. Physiological and Chemical Ecology. (3)
Prerequisite: Biol 350 or equivalents.
Ecophysiological response of plants to their environment.

551. Quantitative Ecology. (2)
Prerequisite: Biol 350 or equivalent; concurrent enrollment in Stat 221 or 510.

Quantitative methods for ecological sampling and data analysis.

552. Terrestrial Ecosystems. (3)
Theory and application of plant and animal distribution in terrestrial environments.

553. Restoration Ecology. (3)
Recommended: PAS 282, InBio 350, 416; or equivalents.

Nature of ecosystem disturbance and plant succession. The developing science and practice of ecological restoration. Case studies of applied restoration.

554. Wildlife Behavioral Ecology. (3)
Prerequisite: Biol 100, 350; or equivalents.

Integration of principles of ethology, sociobiology, and behavioral ecology using examples from wildlife resources. Behavioral sampling methods stressed. Field trip required.

556. Limnology. (2)
Prerequisite: Biol 350, Chem 106; or equivalents.

Lakes and reservoirs; their biota and physical/chemical properties.

557. Stream and Wetland Ecology. (3)
Prerequisite: Biol 350, Chem 106; or equivalents.

Stream and wetland ecology; their biota and their physical/chemical properties.

558. Aquatic Ecology Laboratory. (1)
Prerequisite: InBio 556 or 557 or concurrent enrollment.

Field experience in aquatic ecology, including shoreline processes, fluvial mechanics, and quantitative and qualitative assessment of lotic and lentic systems. Overnight field trips required.

559R. Advanced Topics Ecology and Evolution. (1–6)

Prerequisite: instructor's consent.

Current topics in ecology, evolution, and systematics.

560. Population Genetics. (4)

Prerequisite: Biol 420 or equivalent.

Basic principles of population genetics applied to natural populations; drift, selection, and nonrandom mating; inferring population subdivision, migration, and gene flow.

580. Scanning Electron Microscopy. (3)

Prerequisite: instructor's consent.

Theoretical and practical scanning electron microscopy of biological, physical science, and engineering samples, emphasizing practical applications.

581. Transmission Electron Microscopy. (3)

Prerequisite: instructor's consent.

Theoretical and practical transmission electron microscopy of biological, physical science, and engineering samples, emphasizing practical applications.

590R. Advanced Science In-Service. (1–5)

In-service course for science teachers. Subjects may include:

- Ecology Science In-Service
- Genetics Science In-Service
- Evolution Science In-Service
- Botany Science In-Service
- Meteorology Science In-Service

610. Botanical Nomenclature and Terminology. (2)

Prerequisite: instructor's consent.

Botanical terminology, including the contributions of Latin and Greek words, their gender, number, and case.

629. Conservation of Mega and Meso Carnivores. (3)

Life histories of representative carnivores with political, popular, and managerial problems surrounding their existing and proposed conservation.

640. Phylogenetic Systematics. (4)

Prerequisite: Biol 420 or equivalent.

Theoretical foundations of modern systematics, methods of phylogenetic inference, and discussion of contemporary literature.

641. Molecular Evolution. (4)

Prerequisite: Biol 420 or equivalent.

Theoretical foundations of molecular evolution; molecular phylogenetics, estimates of population genetic parameters, gene duplication, horizontal gene transfer, rates of evolution, molecular clocks.

652. Population Ecology. (2)

Prerequisite: Biol 350, 420, Math 119; or equivalents.

Foundations of population ecology, including models of single and multiple species: population growth, life history, competition, and predator-prey interactions.

653. Community Ecology. (2)

Prerequisite: Biol 350, 420; or equivalents.

Current concepts and theories of underlying mechanisms structuring terrestrial, freshwater, and marine communities: scale, heterogeneity, foodweb stability, local versus regional processes, meta-community dynamics, historical constraints.

656. Experimental Systems in Ecology and Evolution. (2)

Prerequisite: Biol 420 or equivalent; Stat 510 or equivalent; InBio 652 or 551 or 560.

Developing an experimental framework for ecological and evolutionary studies, including application of theory to formulate hypotheses, developing a research and modeling plan, and data analysis.

681R. Electron Microscopy Laboratory. (1–6)

Prerequisite: instructor's consent.

Advanced research in electron microscopy.

691R. Graduate Seminar. (0.5)

694R. Special Problems in Integrative Biology. (1–6)

Prerequisite: supervisor's consent.

Independent student research under faculty supervision.

695R. Practicum in Biology Teaching. (4–8)

Curricula, principles, concepts, and experiences in teaching biology effectively.

698R. Master's Project. (1–6)

699R. Master's Thesis. (1–9)

799R. Doctoral Dissertation. (1–9)

FACULTY

ANDERSON, VAL JO, *Professor*. PhD, Texas A&M University, 1989.

Range Ecology; Ecophysiology.

ATWOOD, N. DUANE, *Assistant Curator of the Herbarium*. PhD, Brigham Young University, 1972. Plant Taxonomy.

BAUMANN, RICHARD W., *Professor*. PhD, University of Utah, 1970. Aquatic Insect Systematics; Biology; Distribution.

BELK, MARK C., *Associate Professor*. PhD, University of Georgia, 1992. Evolutionary Ecology.

BLACK, HAL L., *Professor*. PhD, University of New Mexico, 1972. Ecology; Mammalogy.

BOOTH, GARY M., *Professor*. PhD, University of California, Riverside, 1969. Insect Physiology; Toxicology.

BROTHERSON, JACK D., *Professor*. PhD, Iowa State University of Science and Technology, 1969. Community Ecology; Range Management.

CATES, REX G., *Professor*. PhD, University of Washington, 1971. Plant/Herbivore Interactions; Ecological Chemistry.

CLARK, SHAWN, *Collections Manager—Arthropods*. PhD, Ohio State University, 1988. Systematics of Chrysomelid Beetles (Leaf Beetles).

CRANDALL, KEITH A., *Associate Professor*. PhD, Washington University, 1993. Population Genetics; Molecular Evolution; Conservation Biology.

FLINDERS, JERRAN T., *Professor*. PhD, Colorado State University, 1971. Wildlife Behavior; Wildlife Habitat.

GARDNER, JOHN S., *Research Professor*. PhD, Brigham Young University, 1978. Electron Optics; Fungal Ultrastructure.

HATCH, KENT A., *Assistant Professor*. PhD, University of Wisconsin, 1996. Zoology; Physiological Ecology; Conservation Biology; Stable Isotope Technology; Population Biology; Animal Behavior.

HESS, WILFORD M., *Professor*. PhD, Oregon State University, 1962. Electron Optics; Ultrastructure; Plant Pathology.

JEFFERY, DUANE E., *Professor*. PhD, University of California, Berkeley, 1972. Ecological, Evolutionary Genetics.

JOHNSON, LEIGH, *Assistant Professor*. PhD, Washington State University, 1996. Plant Systematics and Evolution.

MCCLELLAN, DAVID A., *Assistant Professor*. PhD, Louisiana State University, 1999. Zoology; Molecular Evolution; Theoretical Evolutionary Genetics; Phylogenetic Systematics.

NELSON, C. RILEY, *Associate Professor*. PhD, Brigham Young University, 1986. Entomology; Ecology; Systematic Biology.

PECK, STEVEN L., *Assistant Professor*. PhD, North Carolina State University, 1997. Environmental Biostatistics; Biomathematics; Entomology.

RADER, RUSSELL B., *Associate Professor*. PhD, Colorado State University, 1987. Freshwater Invertebrate Ecology.

ROBINSON, TODD F., *Assistant Professor*. PhD, Cornell University, 1998. Growth Biology; Metabolic Processes.

ROEDER, BEVERLY L., *Professor*. DVM, Ohio State University, 1982; PhD, Pennsylvania State University, 1990. Anatomy; Physiology; Medicine and Surgery; Animal Health; Prevention and Diagnoses of Metabolic Disorders.

ROGER, DUKE S., *Associate Professor*. PhD, University of California, Berkeley, 1986. Phylogenetic Systematics—Mammalogy.

ROUNDY, BRUCE A., *Professor*. PhD, Utah State University, 1984. Vegetation; Restoration Ecology.

ST. CLAIR, LARRY LEE, *Professor*. PhD, University of Colorado, 1984. Cryptogams; Environmental Biomonitoring.

SHIOZAWA, DENNIS K., *Professor*. PhD, University of Minnesota, St. Paul, 1978. Aquatic Ecology; Ichthyology.

SITES, JACK W., JR., *Professor*. PhD, Texas A&M University, 1980. Evolutionary Genetics; Herpetology.

SMITH, H. DUANE, *Professor*. PhD, University of Illinois, 1969. Mammalian Ecology; Wildlife Management.

WELSH, STANLEY L., *Professor*. PhD, Iowa State University of Science and Technology, 1960. Plant Systematics; Western American and Polynesian Floras.

WHITE, CLAYTON M., *Professor*. PhD, University of Utah, 1968. Raptor Biology; Ornithology; Avian Systematics and Evolution.

WHITING, MICHAEL F., *Assistant Professor*. PhD, Cornell University, 1994. Entomology; Phylogenetic Theory and Practice.

WOOLSTENHULME, LOREEN ALLPHIN, *Assistant Professor*. PhD, University of Utah, 1996. Plant Ecology; Plant Reproductive Biology; Conservation Genetics.

INTERNATIONAL AND AREA STUDIES

237 HRCB
Provo, UT 84602-4538
(801) 422-3378
Fax: (801) 422-0382

COURSE DESCRIPTIONS

International and Area Studies does not offer a graduate degree but does offer the following graduate courses:

501R. Graduate Colloquium. (1)

Prerequisite: graduate status.

Methodologies and reading. Preparation of thesis prospectus and presentation. Required of all international and area studies master's candidates. Studies based on individual and program needs.

570. International Relations: Core Readings. (3)

Prerequisite: PISc 370 or equivalent.

Readings focusing on influential theories in international relations including realism, idealism, Marxism, neorealism, neoliberalism, etc.

599R. Academic Internship: International. (1-9)

Professional-level internship in an international setting. Class must be coordinated through Study Abroad.

600. Theory and Research in Social Science. (3)

Prerequisite: admission to MA program.

Epistemology, logic of inquiry, and modes of qualitative and quantitative research.

610. Issues in Global Trade and Finance. (3)

Prerequisite: IAS 600 or MBA 591.

Global market issues for public and private sectors. Impacts of trade and economic integration; global role of financial markets and institutions.

695R. Directed Individual Studies. (1-3)

697R. Seminar in International Studies. (1-3)

699R. Master's Thesis. (1-6)

LANGUAGE ACQUISITION AND TEACHING

Graduate Coordinator: Melvin J. Luthy

2054B JKHB
Provo, UT 84602-6104
(801) 422-3263

THE PROGRAM OF STUDIES

The College of Humanities offers one collegewide degree in language acquisition: Language Acquisition and Teaching—MA.

Generally not more than two students per language are admitted to the language acquisition program per year. Most students complete the degree within two years.

Language Acquisition and Teaching—MA

This program offers professional preparation to students seeking careers in applied linguistics, foreign language education, computer-assisted language learning and instruction, and other related areas.

Students become familiar with current theories of second language acquisition and develop basic skills in applying that knowledge to teaching, testing, and classroom-oriented research in their language of specialization.

The program is flexible, with emphases varying according to students' interests and faculty members' expertise. It is ideally suited to the needs of the following types of students:

- Students who have completed undergraduate majors in foreign languages, applied linguistics, or related fields, and who are contemplating eventual careers in academics.
- Foreign language teachers at the secondary school level who wish to further their professional education and acquire more specialized competency in their fields.

- Students seeking the necessary preparation for advanced research and work in the field of high-technology applications to language learning and instruction.

Students are admitted to the program with a specific language specialization in Arabic, Chinese, French, German, Japanese, or Russian.

Admission and Entry.

- Application deadline: February 1 (U.S. and international).
- Application requirements: entrance examination is GRE general test; fifteen-minute interview in the language of specialization, addressing applicant's academic goals. The interview may be conducted in person, by telephone, or on tape in conversation with a second party.
- Sample of student's scholarly writing.
- Prerequisite: baccalaureate degree and strong background in the language of specialization.

Requirements for Degree.

- Credit hours (34): minimum 28 course work hours plus 6 thesis hours (699R).
- Required courses: Ling 500, 540, 595, 600; 641 or 660; 677.
- Elective courses: 3 hours of advanced linguistic study of the language of specialization, plus 9 hours as approved by the graduate committee for a total of 12 hours.
- Language requirement: reading and speaking ability (202 level) in language other than English in addition to language of specialization.
- Thesis: 6 hours of 699R in language of specialization.
- Examination: oral defense of thesis.

FINANCIAL ASSISTANCE

Fellowships and full or partial tuition scholarships are available, depending on funding. Applicants should contact the respective language department directly to apply for teaching assistantships.

Limited funds are also available for participation in professional conferences.

RESOURCES AND OPPORTUNITIES

Humanities Technology and Research Support Center. Students in the language acquisition program utilize the Humanities Technology and Research Support Center for world-class computer-assisted language instruction and research.

The Foreign Language Student Residence. Students who desire a more intensive language study experience and practical application of the language under the direction of faculty and native residents may apply to live in the Foreign Language Student Residence. All activities in the individual apartments in the residence are conducted in the foreign language. Housing is available for men and women in the languages of specialization. Graduate students may participate as students or as senior residents.

For a more detailed description of the graduate program requirements, send for a copy of the degree bulletin.

COURSE DESCRIPTIONS

See course descriptions under the Linguistics and English Language section of this catalog and the desired area of specialization.

FACULTY

Over twenty faculty members are associated with the program and are available for consultation, although the primary advisor is usually associated with the language of specialization. See faculty names and research interests under the Linguistics and English Language section of this catalog and the various language departments.

J. REUBEN CLARK LAW SCHOOL

Dean: H. Reese Hansen

Associate Dean: J. Clifton Fleming, Jr.

Associate Dean: Constance K.
Lundberg

Associate Dean: Kevin J. Worthen

Associate Dean: Scott W. Cameron

Associate Dean: Kathy D. Pullins

Assistant Dean and Graduate

Coordinator: Carl Hernandez III

Assistant Dean: Mary H. Hoagland

Admissions Office: 340 JRCB

Provo, UT 84602-8000

(801) 422-4277

THE PROGRAM OF STUDIES

Students admitted to the highly competitive programs of the Law School receive a breadth and depth of training that prepares them to function in the wide range of activities that occupy the professional lawyer's life. Students gain firsthand experience with a variety of teaching and learning methods, among them Socratic or inductive teaching, problem solving, seminars, individual research, and clinical experience.

The specific objective of the curriculum is to maximize the student's mastery of legal reasoning and legal method—in addition to teaching a core of the basic substantive rules of law and imparting an appreciation for its institutions and traditions.

Students are taught to analyze complex factual situations; to separate the relevant from the irrelevant; and to reason inductively, deductively, and by analogy. Students are also schooled in the arts of written and oral advocacy.

Legal education at this school does not include the sponsorship of particular political objectives, except as may flow from loyalty to the United States Constitution and from a commitment to the highest ideals of personal character and individual liberty. These make up the foundation upon which an enduring legal system must rest.

Two degrees are offered through the J. Reuben Clark Law School: Law—JD and Comparative Law—LLM. The university has also approved programs whereby qualified students can obtain a concurrent master's degree in business administration, public administration, accountancy, or education or a doctorate in education while pursuing a law degree.

The Law School selects approximately 150 students each year for admission to the new class. The juris doctorate (JD) takes three years (six regular semesters) in residence to complete. The LLM students receive their degree on completion of 24 credit hours earned during at least two semesters in residence.

Law—JD

The J. Reuben Clark Law School offers a six-semester course of graduate professional study leading to the juris doctorate (JD) degree.

Additional information about legal education, admissions standards, and procedures—including information about the Law School

Admission Test (LSAT) and registration with the Law School Data Assembly Service (LSDAS)—can be obtained from the J. Reuben Clark Law School Bulletin, which is available through the admissions office of the Law School, or visit our Web site at www.law2.byu.edu/admissions/.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 2. (Admissions are for fall semester only.) By the posted deadline, all parts of the completed application must have been received by the Law School Admissions Office, 340 JRCB, Provo, UT 84602-8000. To be considered complete, application must include the following:
 - Completed official Law School application form.
 - Check or money order for \$60 payable to Brigham Young University. (This is an application fee and is neither refundable nor credited toward tuition.)

—Two letters of recommendation, including one academic letter and one from a supervisor of work or service (including church, military, or other).

—Report of the applicant's interview with an LDS bishop, branch president, or mission president; religious leader of another faith; or judge of a court of general jurisdiction indicating the applicant's willingness to comply with the BYU Honor Code and standards of conduct.

—LSDAS Law School Report that includes transcripts and LSAT scores.

—A personal statement.

- Application requirements: to be admitted to the Law School, an applicant must be a college graduate who has attained an acceptable LSAT score, has excelled academically, and has demonstrated an ability to add value to the legal profession through exceptional life experience. In addition, applicants must meet the general university admission requirements, including the personal standards required of all students.
- Prerequisite: a bachelor's degree is required to ensure that the entering student has the soundest possible foundation for the study of law. Because the study of law ranges so broadly, no specific undergraduate major is required. The greater the student's diversity with the human experience, the better.
- Skills: ability to analyze, reason, read carefully, think in abstract terms, and express thoughts clearly and precisely.

Requirements for Degree.

- Credit hours (90): credits toward the JD degree must be earned by the end of ten regular BYU Law School semesters (five years) after a student has begun the study of law at an ABA-approved law school.
- Required courses: all first-year courses are required for graduation: Torts, Contracts, Civil Procedure, Criminal Law, Property, Advocacy 1 and 2, Perspectives on

Law, and Structures of the Constitution. Each student will then be required to take the professional responsibility course during the second or third year.

- Legal paper: each student will be required to prepare, during his or her second or third year, a substantial paper of satisfactory quality.
- Legal research training: each student must complete ten days of legal research training before graduation, or complete the advanced legal research class.
- Residency requirement: graduation requires six regular semesters in residence. Enrollment in summer programs (ten semester hours spread over two summers) can reduce the number of regular semesters from six to five.
- Graduation interview: to be held with the director of student records and services four months prior to graduation.

Comparative Law—LLM

The J. Reuben Clark Law School created the Master of Law (LLM) program in 1988 to provide an opportunity for lawyers trained in jurisdictions outside the United States to engage in a comparative study of the U.S. legal system with that of their home country. The program provides maximum exposure to the U.S. legal system and interaction between master of law students and students seeking the juris doctorate degree. Students obtain a solid foundation in the basic principles of U.S. law while being allowed the flexibility to pursue personal academic interests. To ensure a superior educational experience for students in the program, admission is limited to six to eight students per year.

The master of law (LLM) degree is conferred upon successful completion of a minimum 24 credit hours earned during at least two semesters in residence following completion of a JD degree or its equivalent outside the United States.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15.

(Admissions are for fall semester only.) By the posted deadline, all parts of the completed application must have been received by the Law School Admissions Office. To be considered complete, the application must include the following:

- Completed application on the official Law School application form.

- Check or money order for \$60 payable to Brigham Young University. (This is an application fee and is neither refundable nor credited toward tuition.)

- Two completed evaluations from (1) a faculty member who taught the applicant in law school courses and (2) one other person who has supervised the applicant's academic or professional work or service.

- Report of the applicant's interview with his or her bishop, clergy, or judge of a court of general jurisdiction indicating the applicant's willingness to comply with the BYU Honor Code.

- Official transcripts of the applicant's academic record listing courses and corresponding grades and, if available, a statement of rank in class. This statement must be evaluated by a transcript evaluation service that will convert applicant grades to U.S. equivalents.

- If English is not the applicant's native language, reports of the TOEFL. A TOEFL score of at least 590 on the paper-based test and 243 on the computer-based test is required for admission to the program.

- Written statement explaining the applicant's reasons for wanting to pursue postgraduate studies in law and the applicant's career plans.

- Official verification of admission, or eligibility for admission, to the practice of law in the applicant's native country.

- Proof of the applicant's financial capability to be self-supporting while enrolled in the Law School.

- Application requirements: an applicant for admission to the LLM program must have completed either a period of law study at

least substantially equivalent to that required of a graduate of an ABA-approved law school in the United States or another course of law study that has adequately prepared the student to pursue an LLM degree. The applicant must have completed the educational requirements for admission to the practice of law in his or her native country. In addition, applicants must meet the general university admission requirements, including the personal standards required of all students.

Requirements for Degree.

- Credit hours (24): credits toward the LLM degree must be earned during at least two regular BYU Law School semesters following completion of a JD degree or its equivalent outside the United States.
- Required courses: each student will be required to complete the 3-credit-hour Introduction to American Law course during the fall semester. Additionally, each student is required to complete two semesters in one of the regular first-year courses in the JD program. The course chosen to fulfill this requirement is determined by the student in consultation with his or her faculty-appointed advisor.
- Legal research training: each student must complete the legal writing and research course related to the first-year course selected.
- Written thesis: a student may earn up to 4 credit hours for a written thesis project supervised by an appointed thesis advisor and defended before that advisor and two additional readers. Although the written thesis is encouraged, it is not required for completion of the LLM degree.
- The student chooses the remainder of his or her curriculum from the regular juris doctor course offerings.

Joint Master's Degrees—JD/MBA, JD/MPA, JD/MAcc

Joint degrees with the JD are offered in business administration, public administration, and accountancy in a

duration of four academic years. The law program is ordinarily three years; the other programs are two. The four-year combination is possible because of subject areas of common interest to the programs. The first year is ordinarily spent in the Law School, the second year is devoted to the first two semesters of regular MBA, MPA, or MAcc programs, and the last two years are arranged to suit individual needs above the core requirements. Further inquiries can be sent to the Law School or to the Marriott School (for MBA, MPA, or MAcc programs). Address Marriott School correspondence to Marriott School of Management, 730 TNRB, Provo, UT 84602-3113.

Note: Students entering one of the joint programs must meet the admission requirements of each degree.

Joint Education Degrees— JD/MEd, JD/EdD

The Law School and the McKay School of Education have established the joint JD degree and either a master of education or a doctor of education. The Law School will accept 6 hours of credit obtained in the master's program, or 9 hours of credit obtained in the doctoral program toward the JD degree.

Note: Participants must meet the admission standards of each degree.

Joint Programs—JD/Master's

In special cases the Law School will accept credit earned in other graduate programs offered by the university. The Law School has details about specific programs.

FINANCIAL ASSISTANCE

A number of scholarships and endowed awards are available to law students, as well as low-interest loans. Students interested in these opportunities should inquire at the Law School Admissions Office and the BYU Financial Aid Office.

Tuition and Fees. Tuition and fees must be paid before or at the time of registration. Since a significant por-

tion of the cost of operating the Law School comes from the tithes of The Church of Jesus Christ of Latter-day Saints, students and the families of students who are tithe-paying members have already made a significant contribution to the university and are thus charged a lower tuition fee than nonmembers. This disparity is similar to the higher tuition charged by law schools of state universities to nonresidents.

Annual tuition: \$ 7,160 LDS
\$10,740 non-LDS

RESOURCES AND OPPORTUNITIES

J. Reuben Clark Law Building. One of the finest university law school facilities in the country, the J. Reuben Clark Law Building is attractively located on the eastern edge of the campus. Its five floors house spacious classrooms with electrical connectivity to each student seat, a computer technology lab, wireless capabilities from all locations within the building, and ample spaces for student organizations and activities, as well as faculty offices and a law library.

Howard W. Hunter Law Library. Ranking now among the nation's largest law libraries, the Howard W. Hunter Law Library contains more than 400,000 volumes or equivalents available for student and faculty use. Besides the latest in technological facilities and services, the library also provides individual study carrels with hookups for computer access to networks and several study rooms for group use. Law students also have access to the holdings in the university library, the Harold B. Lee Library.

Cocurricular Programs. In addition to the Brigham Young University Law Review, law students publish the BYU Journal of Public Law and the Brigham Young University Education and Law Journal and participate in board of advocates and trial advocacy programs. The cocurricular programs extend law review experience to a larger number of stu-

dents than would be possible through a single journal.

Externship Program. This program offers an opportunity for students to participate in practical training with private law firms, international regional offices of the Church of Jesus Christ's legal counsel in many foreign nations, the judiciary, and governmental offices.

Student Organizations. Within the Law School, students may participate in a number of organizations, among them the Student Bar Association, the Alternative Dispute Resolution (ADR) Society, the American Constitution Society for Law and Policy, the Association of Trial Lawyers of America (ATLA), the Federalist Society, the Government and Politics Legal Society (GPLS), the International and Comparative Law Society (ICLS), the Latino/a Law Student Association (LALSA), the Law and Economics Club, the Journal of International Law Working Papers, the Minority Law Student Association (MLSA), the Native American Law Student Association (NALSA), the National Resources Law Society, Phi Alpha Delta, Phi Delta Phi, the Public Interest Law Foundation (PILF), the Student Intellectual Property Law Association (SIPLA), the Sports and Entertainment Law Society (SpEnt), and the Women's Law Forum. For spouses of married law students there is Law Partners, and for single law students, there is the Private Practice Society.

For a more detailed description of the graduate program requirements, send for a copy of the J. Reuben Clark Law School Bulletin.

COURSE DESCRIPTIONS

First Year Courses

Note: Some courses may not be offered every year.

505. Torts. (4)

Prerequisite: admission to law school.

Study of the judicial process in civil actions for damages or equitable relief for physical, appropriational, and defamatory harms to personality, property, and relational interests, with some consideration of alternative reparation systems such as workers' compensation.

510. Contracts. (4)

Prerequisite: admission to law school.

Examination of the promises enforced by law, and the nature of the protection given. Inquiry made into the formation, performance, and discharge of contracts; their assignment, termination, and modification; and the variety, scope, and limitations on remedies. Attention will be given to Article 2 of the Uniform Commercial Code.

515. Civil Procedure. (4)

Prerequisite: admission to law school.

Basic study of the operation of courts, including an introduction to the organization of state and federal courts and relationships between them. Topics include: jurisdiction over persons, things, and subject matter; venue; the scope of litigation as to claims, defenses, and parties; pleading, pretrial motions, discovery, and pretrial conferences; trials and the functions of judges, juries, and lawyers; appeals and the role of appellate courts; and the enforcement and finality of judgments and decrees.

520. Property. (4)

Prerequisite: admission to law school.

Inquiry into the nature of "property" and "ownership" of land and structures on land and the ways in which ownership may be established, restricted, transferred, and divided among various persons.

525. Criminal Law. (3)

Problems in defining what conduct should be subjected to criminal penalties; the limitations of criminal law as a means for prevention and control of undesirable conduct.

530. Structures of the Constitution. (3)

Prerequisite: admission to law school.

The Constitution's distribution of sovereign power between the federal government and the states; its allocation of federal sovereign power among Congress, the president, and the judiciary.

540. Perspectives on Law. (3)

Prerequisite: admission to law school.

One or more accounts of the Anglo-American legal system, such as alternative dispute resolution, American legal history, comparative law, or jurisprudence. Includes the principal criticisms of the accounts studied and is designed to provide first-year students with multiple perspectives and tools with which to critically analyze existing law.

545. Advocacy 1. (3)

Prerequisite: admission to law school.

Focuses on legal research, analysis, and writing in the context of a problem that results in litigation. One graded paper, an office memo, teaches predictive writing; another, a motion memo, teaches persuasive writing.

546. Advocacy 2. (2)

Prerequisite: Law 545.

Focuses on legal research and analysis and on appellate legal writing and appellate oral advocacy. Student will prepare an appellate brief and orally argue the case in the first-year moot court competition.

Second- and Third-Year Courses

549. Professional Seminar. (0.5)

Prerequisite: admission to law school.

The intersections of law, religion, values, and professionalism; relations between legal education, legal system, practice of law, and roles of lawyers.

550, 551. Professional Development Lecture Series 1, 2. (0.5 ea.)

Prerequisite: admission to law school.

Determining which career path to pursue. Practicing attorneys discuss the nuts and bolts of areas of practice.

552. Professional Development Skills Training. (0.5)

Prerequisite: admission to law school.

Creating resumés, business correspondence, and marketing plans; effective interviewing and networking; incorporating technology and published resources in the job search.

599R. Externship. (1–12)

Prerequisite: first-year law courses.

- Legal Services
- Externship
- Pro Bono
- Cooperative Education

600. Adjudication: Law and Logic. (2)

Prerequisite: first-year law courses.

Resources informal logic brings to ability to evaluate the work of judges; introduction to logical reasoning, fallacies, and biasing influences.

601. Advanced Legal Research. (2)

Prerequisite: first-year law courses.

Advanced legal research sources and methodologies.

602. Administrative Law. (3)

Prerequisite: first-year law courses.

Examination of the administrative process: why administrative agencies are created, how they obtain and use information, what proceedings (rule-making/adjudication) agencies can commence, and what controls (political/judicial) over agency action exist.

603. Criminal Procedure. (3)

Prerequisite: first-year law courses.

Problems in administering a system of criminal law; constitutional and policy limitations upon public officers in dealing with suspected, charged, and convicted offenders.

604. Advanced Legal Writing. (2)

Prerequisite: first-year law courses.

Study and application of sound writing techniques that are most challenging for lawyers. Extensive writing, editing, and classroom participation required.

605. Antitrust. (3)

Prerequisite: first-year law courses.

Development of legal doctrine under the Sherman Act and supplemental legislation, including price fixing, division of market, monopolization, mergers, tying and exclusive dealing arrangements, boycotts, and special relationships between principles of patent and antitrust law. Emphasis: the relationships between principles of law and economics, examined in the context of certain key cases.

606. Anglo-American Legal History. (2)

Prerequisite: first-year law courses.

Survey of the legal systems and values that influenced Western civilization, with emphasis on the history of Anglo-American common law.

607. Ancient Laws in the Bible and Book of Mormon. (3)

Prerequisite: first-year law courses.

Comparative study of selected legal topics in the law codes of the Sumerians, Babylonians, Hittites, Assyrians, and Israelites, as well as legal cases in the Book of Mormon and the New Testament.

608. Law of Debtors and Creditors. (3)

Prerequisite: first-year law courses.

Exploration of our human condition as debtors and creditors.

609. Law and Religion. (3)

Prerequisite: first-year law courses.

Appropriateness of public action based on religious belief, with specific application to questions of abortion, same-sex orientation, gender discrimination, and pornography.

610. Business Associations. (3)

Prerequisite: first-year law courses.

Introduction to business associations, agency, uniform partnership acts, the essentials of corporate formation, shareholders rights, special problems of closely held businesses, preemptive rights, etc.

611. Advising Closely Held Business. (2)

Prerequisite: first-year law courses; Law 641.

Advanced work in partnerships, corporations, and federal taxation in the context of business planning and counseling. Based on readings and problems that consider a broad range of matters commonly faced by lawyers who advise closely held businesses, including: drafting partnership agreements, determining whether and how to incorporate, organizing the closely held corporation and preparing basic corporate documents, counseling the owners of an ongoing corporate business, working with accountants and other professional business advisors, arranging business financing, getting earnings out of a corporate business, forming professional corporations, and avoiding common malpractice and ethical problems. Course grade will be determined from performance on a series of document-drafting exercises.

613. Community Lawyering. (3)

Prerequisite: first-year law courses.

Christian reconstruction of the lawyer's role in public life, especially how that role is performed among the disadvantaged.

614. Combining and Reorganizing Corporate Businesses. (2)

Prerequisite: Law 640, 641.

Advanced federal income tax. Tax-free methods for selling, acquiring, dividing, and internally restructuring corporations.

615. Secured Transactions. (3)

Prerequisite: first-year law courses.

All aspects of security in personal property (personal property includes everything except land). Problems and legal principles relevant to the creation of the security interest, to its perfection, to priorities between competing security interests and between a security interest and other kinds of property interest, to payment and redemption, and to realization procedures. Article 9 of the Uniform Commercial Code.

616. Commercial Paper. (3)

Prerequisite: first-year law courses.

Negotiable instruments (checks, drafts, notes) under Articles 3 and 4 of the Uniform Commercial Code; letters of credit and electronic transfers.

617. Comparative Law. (3)

Non-common-law legal tradition, emphasizing civil law. Legal traditions of Islamic and socialist countries.

618. Community Property. (2)

Prerequisite: first-year law courses.

Community property: the basic concept and underlying policies; initiation and existence of a marital community; property capable of community ownership; classification of property as community or separate; and property management and control.

619. Conflicts of Law. (2-3)

Prerequisite: first-year law courses.

Jurisdictional issues, choice of law, and recognition of judgments in cases involving interstate and state-federal conflicts.

621. The Fourteenth Amendment. (3)

Prerequisite: first-year law courses.

Express and implied individual rights guaranteed by the privileges or immunities, equal protection, and due process clauses of the Fourteenth Amendment.

622. Selected Issues in Employment Law. (3)

Prerequisite: first-year law courses.

Employment discrimination: benefits, compensation, and hours; workplace safety and health.

623. Business Reorganization Under the Bankruptcy Code. (3)

Prerequisite: first-year law courses; Law 608.

Practical analysis of the law and policy underlying business reorganizations in Chapter 11 from filing the petition to confirming the plan.

624. Environmental Law. (3)

Major federal laws relating to environmental protection, including the Endangered Species Act, the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, and CERCLA. Crosscutting issues of environmental and regulatory concern, including strengths and limitations of differing regulatory approaches; role of states, agencies, and private litigants in administering and enforcing such laws; extent to which economic analysis is appropriate to formulating environmental policies.

625. Evidence. (3)

Prerequisite: first-year law courses.

Law of evidence, including principles governing admissibility of evidence, competency of witnesses, and function of lawyer, judge, and jury in presenting and evaluating evidence.

626. The First Amendment. (3)

Prerequisite: first-year law courses.

Rights guaranteed by the speech, press, and religion clauses of the First Amendment.

627. Consumer Protection. (3)

628. Remedies. (3)

Prerequisite: first-year law courses.

General principles and basic rules governing the rich inventory of remedies available through American courts, which cuts across substantive fields and guides the lawyer in fashioning or defending against various remedial schemes in any substantive context. Issues and developments of contemporary importance, including public as well as private law remedies.

629. Advanced Corporation Law. (3)

Prerequisite: first-year law courses.

Application of corporation law in complex corporate transactions.

630. Criminal Trial Practice. (2)

Prerequisite: first-year law courses.

Develops the art and practical skill of trial advocacy. Typical situations that arise in the trial of a criminal case.

631. Tax Planning for Individuals. (3)

Prerequisite: Law 640, 641, 681.

Tax planning techniques involved in accumulating, preserving, and disposing of wealth.

632. Family Law. (3)

Prerequisite: first-year law courses.

General survey of laws regulating the creation, continuation, and dissolution of spouse and parent-child relations. Prerequisite to children and the law and advanced family law.

633. Children and the Law. (2)

Prerequisite: first-year law courses; Law 632.

Issues relating to state regulation of parent-child relations, including children's rights, parent rights, juvenile courts, adoption, health decisions, educational decisions, child abuse and neglect, youth status offenses, and delinquency.

634. Law and Public Education. (2)

Prerequisite: first-year law courses.

Constitutional issues of public education: free speech, student conduct, teacher rights and discipline, equal access, special education, home schools, and religion in the public schools.

635. Federal Courts 1. (3)

Prerequisite: first-year law courses.

An advanced study of the federal structure of our judicial system, with emphasis on the limits of the federal judicial power and the respective powers of federal and state courts. Topics studied include the power of Congress to restrict the jurisdiction of federal courts, use of "legislative" courts, Supreme Court review of state court decisions, federal injunctions of state officers and proceedings, state governmental immunity from federal court litigation, abstention, removal, and habeas corpus. The course also examines sophisticated problems of federal questions and other "heads" of federal judicial power and considers aspects of federal government litigation.

636. Federal Courts 2. (2)

Prerequisite: first-year law courses, Law 635.

A continuation of Law 635.

637. Advanced Estate Planning. (3)

Prerequisite: first-year law courses, Wills and Estates, Tax 1 and 2, Business Associations.

Effective disposition of wealth by *inter vivos* gift and testamentary transfer.

638. Contemporary Legal Theory. (3)

Central topics include theories of interpretation, postmodern approaches to law, theories of judicial review, and tensions between autonomy and community in legal theory.

639. International Business Transactions. (3)

Making, regulating, and breaking international business transactions. (1) Formation of international business transactions, focusing on contracting for and financing the international sale of goods, licensing and distributorship agreements, and foreign direct investment. (2) Regulation stage of international business transactions, including the transnational reach of U.S. government regulation, regulation of corrupt payments to foreign officials, international protection of intellectual property, and securities and antitrust

aspects of international transactions. (3) Breaking international business transactions; transnational dispute resolution through arbitration and through transnational litigation in U.S. courts.

640. Federal Taxation 1. (4)

Prerequisite: first-year law courses.

Federal personal income tax, with an introduction to business and corporate income tax and federal tax procedure. Examining and understanding statutory, judicial, and administrative tax law and applying the law in solving specific problems.

641. Federal Income Taxation 2. (4)

Prerequisite: first-year law courses; Law 640.

Federal income tax consequences flowing from creation, operation, merger, dissolution, and sale of partnerships and corporations; federal tax considerations bearing on choice between conducting a business in partnership or corporate form.

642. Intellectual Property Law. (3)

Prerequisite: first-year law courses.

Patent, copyright, and trademark law, with particular attention to the issues common to them and the interrelationship among them in practice.

643. U.S. Taxation of International Income. (2)

Prerequisite: first-year law courses; Law 640.

Application of the federal income tax to foreign income of U.S. citizens and residents and to the U.S. source income of foreigners. Purpose and operation of income tax treaties.

644. Insurance Law. (3)

Prerequisite: first-year law courses.

Insurance law including formation, interpretation, and enforcement of the insurance contract; coverage issues, legal aspects of the regulation of the insurance industry.

645. Federal Indian Law. (3)

Prerequisite: first-year law classes.

Law of the federal government and the states respecting Native Americans and their land. Relationship of European discoverers and Native Americans during colonial period; Native American treaties, executive orders, and agreements; changing United States policy respecting Native Americans; federal, state, and tribal jurisdictions, civil and criminal; tribal courts; Native American hunting and fishing rights, water rights, and civil rights.

646. Jurisprudence. (3)

Basic legal conceptions that pervade the theory of practice and law: the idea of the rule of law itself, the tension between natural law and positivism, rules and discretion, discourse, justice, desert, consent, equality, morality, efficiency, loyalty, and consistency. How these ideas lie at the heart of the legal discipline, and how some of the world's greatest minds have come to terms with them. Readings drawn from classical and contemporary sources.

647. International Organizations. (3)

Makeup and expanding operations of the UN system. Expanding role of international law on domestic policy.

648. Workers' Compensation. (2)

Prerequisite: first-year law courses.

Substance and procedure of workers' compensation law. Coverage of workers' compensation system; medical, disability, and death benefits; administration of the system, including integration of workers' compensation with other accident benefits systems.

650. Real Estate Finance. (3)

Prerequisite: first-year law courses.

Review of real estate finance transactions, including mortgages, trust deeds, installment sales contracts, other mortgage substitutes, receiverships, transfer of real estate security interests, discharge, deeds in lieu of foreclosure, foreclosure, foreclosure sales, redemption, deficiency payments, priorities, mechanics liens, judgment liens, purchase money mortgages, and ground leases.

651. Advanced Appellate Advocacy. (3)

Prerequisite: first-year law courses.

Written and oral advocacy in the appellate process, including strategy, persuasion techniques, circuit splits, policy argument, standards of review, adverse authority, and counterargument.

652. Legislation. (3)

Prerequisite: first-year law courses.

Process by which policy is translated into statutory law and how that law is applied and interpreted, emphasizing legislative process, separation of powers, and statutory interpretation.

653. Legal Interviewing and Counseling. (3)

Prerequisite: first-year law courses.

Theory and techniques of legal interviewing and counseling. Materials drawn from legal, psychological, and related literature.

654. Legal History and Legal Thought. (3)

655. Labor Law. (2)

Prerequisite: first-year law courses.

Collective bargaining relationships and how agreements are negotiated and administered in the private sector. Developments governing the non-union workplace.

656. Public Lands and Natural Resources. (3)

Prerequisite: first-year law courses.

Natural resources law in context of federal public lands. Topics covered include public land law, water, hard-rock minerals, grazing and range management, wildlife, and recreation law.

657. Fair Employment Practices and Standards. (3)

Governmental regulation of the employer-employee relationship in three contexts: compensation and hours; employment discrimination (age, alienage, disability, gender, national origin, race, and religion); and workplace safety and health (including AIDS, drugs, and hazardous substances).

658. Land-Use Planning. (3)

Prerequisite: first-year law courses.

Public and private limitation imposed upon and positive assistance provided for the use of private and public real estate. Includes land-use politics, administration, control, regulation, zoning, subdivisions, annexations, regulations, eminent domain, conservation, preservation, development, housing, economics, finance, and taxation. Public and private activities and action involved in land-use planning, control, and assistance.

659. Public International Law. (3)

Prerequisite: first-year law courses.

Nature of international law; bases of state jurisdiction; law of sea; law of air space; sovereign immunity; the individual in the international legal system; statehood and recognition of states; diplomatic and consular protection and immunity; international agreements.

660. Professional Responsibility. (2)

Prerequisite: first-year law courses.

Ethical and professional responsibilities of practicing lawyers. Model Rules of Professional Conduct.

661. Public Policy Negotiations. (3)

Prerequisite: first-year law courses.

Applying negotiation theories and skills to civil rights issues and public law conflicts. For students pursuing careers in public interest law, poverty law, or a public policy-oriented practice (e.g., environmental, education, housing, health-care issues).

662. Securities Regulation. (3)

Prerequisite: first-year law courses.

Recommended: Law 610.

Securities Act of 1933, Securities Exchange Act of 1934, state blue sky laws and regulations, distribution and trading of securities, express and implied civil liabilities, criminal liability, insider trading, tender offers, broker-dealer regulation, and the role of lawyers.

663. State and Local Government 1. (3)

Prerequisite: first-year law courses.

Interrelationship among national, state, and local governments and the powers of each, as well as examination of separation-of-powers principles and impact of political process at state and local level.

664. Taxation of Natural Resources. (3)

665. Origins of the Constitution. (3)

Prerequisite: first-year law courses.

Review of drafting and adoption of Constitution and Bill of Rights; development of the ideas of the Constitution—what was intended and why.

666. Wills and Estates. (2)

Prerequisite: first-year law courses.

Gratuitous transfers, primarily the movement of family wealth upon the death of the property owner. Role of the lawyer in estate planning and guiding the administration of decedents' estates. Methods of transferring property and administering decedents' estates, emphasizing intestate succession, wills and will substitutes, and the probate process.

667. Unfair Trade Practices. (2)

Prerequisite: first-year law courses.

Various remedies that competitors or dealers may pursue outside of or in addition to antitrust remedies.

668. Legal Negotiation and Settlement. (3)

Prerequisite: first-year law courses.

How to develop a coherent approach to legal negotiation. (A) Negotiation analysis: learn the concepts and vocabulary necessary for understanding and communicating with others about negotiation; learn how to build a conceptual framework to critically evaluate the functions, strengths, and weaknesses of various negotiation approaches, and learn to organize and structure negotiation skills as a negotiation profile.

(B) Negotiation practice: through participation in increasingly complex negotiation exercises, experiment with various negotiation models within the safe environment of the classroom; gain realistic experience in preparing, negotiating, and evaluating typical legal, business, and public policy issues, and learn to prepare a negotiation discovery map that anticipates issues, keeps the negotiation on track when discussing those issues with opponent, and guides the parties to a mutually satisfying settlement.

(C) Negotiation evaluation: through various forms as assessment, engage in reflective learning that involves use of journal entries to reflect upon and improve negotiation comprehension and performance in class and out; examine how psychological and social projections influence expectations, perceptions, and behavior in negotiation; wrestle with moral and ethical dilemmas in negotiation, and improve course content and methods by giving feedback and suggestions.

669. Public Employment Labor Relations. (2)

670. Advanced Real Estate Transactions. (2)

Prerequisite: first-year law courses; Law 650.

Development and financing of subdivisions, condominiums, and income properties, as well as the impact of bankruptcy on real estate ownership and financing.

671. Oil and Gas. (2)

Prerequisite: first-year law courses.

Coverage of the following: nature of interests in oil and gas, oil and gas lease and associated problems, title and conveyancing problems with respect to transfers of oil and gas interests, and pooling and unitization.

672. North American Free Trade Agreement. (2)

Prerequisite: first-year law courses.

Introduction to NAFTA. Critical issues examined from perspective of Canada, Mexico, and the United States.

673. Selected Issues in Entertainment and Sports Law. (3)

Prerequisite: first-year law courses.

Introduction to the third largest industry in the United States, entertainment: mass media, movies, music, sports, and theatre. Limited number of legal issues discussed.

674. Law Practice Management. (2)

Prerequisite: first-year law courses.

The organization of the law firm; the partnership, the professional corporation, and the proprietorship including the partnership or shareholder agreement. The roles of partners/shareholders and associates, particularly with respect to the income production and compensation. One segment examines nonlaw personnel: secretaries, paralegals, and other employees. Another segment addresses the law office itself: equipment, library, layout and design, supplies, and furniture. An important aspect of any office is the effectiveness of its systems—both substantive and administrative—and how to implement such systems.

675. Advanced Torts. (2)

Prerequisite: first-year law courses.

Tort actions and remedies for injuries to business, family, and political interests, including unfair competition, interference with contract, wrongful death and survival actions, loss of consortium, criminal conversation, alienation, malicious prosecution, abuse of process, and civil rights actions.

676. U.S. Taxation of Foreign Income. (2)

Prerequisite: Law 640 or concurrent enrollment.

U.S. taxation of American corporations and individuals' foreign-source income. Critique of the American system in light of international law and economic norms.

677. Advising Nonprofit and Tax-Exempt Organizations. (2)

Prerequisite: first-year law courses.

Practical and theoretical concerns in organizing and representing nonprofit or tax-exempt entities.

678. Social Policy and Feminist Legal Thought. (3)

Prerequisite: first-year law courses.

Feminist jurisprudence. Various doctrinal strains in development of feminist legal theory and method; applying them to facially neutral legal issues. Rape, domestic violence, employment discrimination, historical and sociological gender treatment, and practical changes in legal profession accompanying influx of greater numbers of women lawyers.

679. Dispute Resolution. (3)

Prerequisite: first-year law courses; Law 668.

Non-trial-based methods of dispute resolution including negotiation, mediation, arbitration, mini-trials, summary jury trials, and innovative uses of third-part neutrals.

680. State and Local Government 2. (3)

Prerequisite: first-year law courses.
Recommended: Law 663.

Trends and perspectives in state and local government, emphasizing state and local control over, and federal limitation on, licensing, land use, and taxation, as well as state and local governmental liability under federal civil rights statutes.

681. Federal Estate and Gift Tax. (3)

Prerequisite: first-year law courses; Law 666.

Federal estate and gift tax, including basic estate-planning concepts.

682. Employee Benefit Plans. (2)

Prerequisite: first-year law courses.

Qualified and nonqualified plans (pensions, profit sharing, IRAs, ESOPs, medical benefits, etc.), including federal tax qualification issues, Department of Labor regulations, and fiduciary duties.

683. Trusts. (2)

Prerequisite: first-year law courses.

Legal framework of private and charitable trusts as vehicles for the donative disposition and management of personal wealth both inter vivos and testamentary; emphasizes the nature of trustees' fiduciary obligations and trust grantors and beneficiaries' rights and obligations.

684. Water Law. (3)

Prerequisite: first-year law courses.

State, federal, and international law respecting water resources allocation, development, management, and conservation.

Substantial paper on transboundary-shared water resources regulation required.

685. Introduction to American Law. (3)

Prerequisite: first-year law courses.

Survey of basic concepts and institutions in the American legal system. For persons who have received their law degree or its equivalent from a university outside the United States.

686R. Special Topics in Law. (2)**687R. Special Topics in Law. (1-4)****700. International Protection of Religious Freedom. (2)**

Prerequisite: first-year law courses.

U.S. and international religious liberty issues—principles, methodologies, international human rights. Analyzing religious liberties in countries around the world.

701. International Securities Regulation. (2)

Prerequisite: first-year law courses.

International debt and equity securities financing—registered and unregistered global offerings; global investments.

702. Church and State in the United States. (2)

Prerequisite: first-year law courses.

U.S. and international religious liberty issues. Focuses on free exercise and establishment clauses of First Amendment.

703. Real Estate Development. (3)

Prerequisite: first-year law courses.

Skills course teaching dynamics of real estate development through practical experience. Students select site, pick a use, and complete transactional and planning stages.

704. Immigration Law. (2)

Prerequisite: first-year law courses.

Overview of the powers to regulate immigration law; admission and removal of foreigners; refugee and asylum law; impact of business/employment-based immigration.

705, 706. Civil Trial Practice 1, 2. (2 ea.)

Prerequisite: first-year law courses.

Interviewing, drafting, negotiating, and using time efficiently in the context of preparing a legal matter; carrying a case through all stages.

707. Health Care Law. (2)

Prerequisite: first-year law courses.

Introduction to health care industry, including regulation quality of health care, relationship of provider and patient, organizing delivery, access to care, cost controls, antitrust, decision making.

708. Comparative Constitutional Law. (2)

Prerequisite: first-year law courses.

Initial constitutional formation and constituents power, separation of powers, judicial review, federalism, freedom of religion and speech, equal protection, privacy, etc.

709. Disability Law. (2)

Prerequisite: first-year law courses.

Rehabilitation Act of 1973, Americans with Disabilities Act of 1990, Education for All Handicapped Children Act, housing, insurance, access to health services, AIDS, and ethical issues.

710, 711. Advanced Comparative Law 1, 2. (2 ea.)

Prerequisite: first-year law courses.

Papers written on transnational and comparative topics during fall prepared for possible inclusion in law review.

712. Economic Analysis of Law. (2)

Prerequisite: first-year law courses.

Economic theory on principles of tort, contract, criminal law; insights into certain rules of procedure, employment law, and constitutional principles.

713. Supreme Court. (2)

Prerequisite: first-year law courses.

Examining the U.S. Supreme Court emphasizing participation in hands-on exercises. Student will draft one opinion on a case on which he or she sits.

714. North American Free Trade Agreement. (3)

Prerequisite: first-year law courses.

Main agreement and two side agreements (environmental and labor). Issues from the Canadian, Mexican, and American points of view.

715. Alternative Dispute Resolution. (2)

Prerequisite: first-year law courses.

Theory and practice of dispute resolution, emphasizing alternatives to traditional litigation such as negotiation, mediation, and arbitration as well as "hybrids."

716. Individual Employment Rights. (2)

Prerequisite: first-year law courses.

Law governing non-union employment relationship from formation through terms and conditions to termination, emphasizing lawyer's role in auditing personnel practices to prevent legal liability.

718. Wildlife Law. (2)

Prerequisite: first-year law courses.

Emphasizing Federal Endangered Species Act and the tension between preserving biological diversity and private property rights. Applying law to Indian tribes and international legal norms for endangered species.

719. International Environmental Law. (3)

Prerequisite: first-year law courses.

Developing international regimes and norms relating to protection of global environment, including climate change, preservation of wildlife, and biodiversity; freshwater resources and Law of the Sea.

720. Legal Research and Writing. (2)

Prerequisite: must be an LLM candidate.

Basic research in American legal tradition and personalized training in writing legal documents in English for non-U.S. attorneys in the LLM program.

721. Racketeer-Influenced and Corrupt Organizations (RICO). (2)

Prerequisite: first-year law courses.

Extent RICO has affected substantive and procedural criminal law jurisprudence and civil commercial litigation.

722. Principles of Trial Advocacy. (2)

Prerequisite: first-year law courses.

Basic principles of litigation skills and trial advocacy, including opening statements, direct examination, admissibility of proof, objections, and closing statements.

723. International Human Rights. (3)

Prerequisite: first-year law courses.

Introduction to international law of human rights—historical evolution of human rights, treatment within U.N. system, significance of European law, challenges in human rights abuse.

724. Basic Mediation. (3)

Prerequisite: first-year law courses.

Fundamental communication and mediation skills. Simulated exercises and role playing. Participation in community mediation or small claims court.

790R. Directed Research. (1–2)

791R. Directed Readings. (1–2)

792R. Cocurricular Programs. (1)

793R. Cocurricular—Special Assignments. (1–2)

Prerequisite: participation in cocurricular programs.

795R. Law School Seminar. (1-18)

- World Trade Organizations
- Advanced Civil Procedure and Complex Litigation 1
- Conflicts of Law
- Race Relations in America and the Law
- Law of Higher Education
- Criminal Sentencing
- International Public and Commerical Arbitration
- Patent Law 1 —Conditions for Patentability
- Giles Rich Research and Brief Writing
- American Legal History after 1820
- Technology Licensing
- International Conflict Resolution
- Legislation and the Legislative Process
- Advanced Legal Research
- Youth in Mediation
- Elder Law
- Domestic Relations
- Domestic Violence Intervention
- Public Land and Natural Resources

796R. Law School Seminar. (1-18)

- Advanced Family Law
- Advanced Civil Procedure and Complex Litigation 2
- Fiduciary Duty in Law and Equity
- Telecommunications
- eCommerce and Internet Law
- Strategies for Acquiring Professional Expertise
- International Moot Court
- Patent Law 2: Infringement and Remedies
- Insurance Law
- Copyright and Trademark Rights
- Energy Law
- Computer-Based Practice Systems
- Mergers and Acquisitions
- Advanced Legal Research
- Youth in Mediation
- Advanced Mediation
- Domestic Relations
- Advanced Community Lawyering
- Child Advocacy
- Street Law

- Advanced Appellate Brief Writing
- Judicial
- Tribal Courts
- Appellate Courts

798R. LLM Thesis. (1-4)

Prerequisite: admittance to LLM program.

FACULTY

AUGUSTINE-ADAMS, KIF, *Professor. JD*, Harvard, 1992. Torts; International Law.

BACKMAN, JAMES H., *Professor. JD*, University of Utah, 1972. Land Use Planning; Real Estate Transactions; Real Property.

BURNS, JEAN WEGMAN, *Professor. JD*, University of Chicago, 1973. Antitrust; Commercial Law; Conflicts of Laws.

DOMINGUEZ, DAVID, *Professor. JD*, University of California, Berkeley, 1980. Criminal Law; Negotiations; Labor Law.

DRIESSEN, MARGUERITE A., *Associate Professor. JD*, Stanford University, 1989. Criminal Law; Evidence; Sentencing Guidelines.

DURHAM, W. COLE, JR., *Professor. JD*, Harvard University, 1975. Comparative Law; Constitutional Law; Criminal Law.

ECHOHAWK, LARRY, *Professor. JD*, University of Utah, 1973. Criminal Law; Public Lands and Natural Resources; Professional Responsibility

FARMER, LARRY C., *Professor. PhD*, Brigham Young University, 1975. Computer-Based Expert Systems in Law Practice; Law and Behavioral Science; Legal Interviewing and Counseling.

FEE, JOHN E., *Assistant Professor. JD*, University of Chicago, 1995. Property, Environmental Law, Land Use Planning.

FLEMING, J. CLIFTON, JR., *Professor. JD*, George Washington University, 1967. Business and Corporate Finance; Estate Planning; Federal Taxation.

FLOYD, C. DOUGLAS, *Professor. LLB*, Stanford University, 1967. Civil Procedure; Federal Courts; Antitrust.

GEDICKS, FREDERICK M., *Professor. JD*, University of Southern California, 1980. Law and Religion; Constitutional Law; Legal Theory.

GERDY, KRISTIN, *Director of Advocacy Program. JD*, Brigham Young University, 1995. Appellate Practice; Legal Research and Writing.

GOLDSMITH, MICHAEL, *Professor. JD*, Cornell University, 1975. Criminal Law; Criminal Procedure; RICO.

GORDON, JAMES D., III, *Professor. JD*, University of California, Berkeley, 1980. Contracts; Securities Regulation.

HANSEN, H. REESE, *Professor. JD*, University of Utah, 1972. Director, Clinical Studies. Wills; Estates and Trusts; Estate and Gift Tax.

LEE, THOMAS R., *Professor. JD*, Univeristy of Chicago, 1991. Civil Procedure; Remedies.

LUNDBERG, CONSTANCE K., *Professor. JD*, University of Utah, 1972. Environmental Law; Federal Courts; Natural Resources.

NEELEMAN, STANLEY D., *Professor. JD*, University of Denver, 1972. Wills and Estates; Taxation.

PRESTON, CHERYL BAILEY, *Professor. JD*, Brigham Young University, 1979. Debtor-Creditor Rights; Gender and Law; Commercial Law.

RASBAND, JAMES R., *Associate Professor. JD*, Harvard, 1989. Torts, Water Law

SCHARFFS, BRETT G., *Associate Professor. JD*, Yale, 1992. Business Associations; International and Business Transactions and International Securities.

THOMAS, DAVID A., *Professor. JD*, Duke University, 1972. Federal Jurisdiction; Legal Bibliography, History, Research, and Writing; Real Property.

WARDLE, LYNN D., *Professor. JD*, Duke University, 1974. Biomedical Ethics and Law; Conflict of Laws; Family Law.

WELCH, JOHN W., *Professor. JD*, Duke University, 1975. Agency and Partnerships; Corporate Finance; Federal Taxation.

WILKINS, RICHARD G., *Professor. JD*, Brigham Young University, 1979. Antitrust; Civil Procedure; Federal Courts; Constitutional Law.

WILLIAMS, GERALD R., *Professor. JD*, University of Utah, 1969. Office Practice; Remedies; Legal Negotiation and Settlement.

WOOD, STEPHEN G., *Professor. JD*, University of Utah, 1969; JSD, Columbia University, 1980. Administrative Law; Employment Law; International Business Transactions.

WORTHEN, KEVIN J., *Professor. JD*, Brigham Young University, 1982. Torts; Environmental Law.

LINGUISTICS AND ENGLISH LANGUAGE

Chair: Lynn E. Henrichsen

Associate Chair: Dallin D. Oaks

Graduate Coordinator: Alan Manning

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THE PROGRAM OF STUDIES

The Department of Linguistics and English Language has five primary academic thrusts: theoretical linguistics, computational linguistics, English language, editing, and language learning and teaching. The department offers two graduate degrees: a master's program in linguistics (which allows specialization in either computational or theoretical linguistics) and a master's program in teaching English to speakers of other languages (TESOL).

These graduate programs have seen constant growth over the years, partly owing to the intrinsic interest that the study of language holds and especially because of the unrelenting, worldwide demand for learning English as a second or foreign language. Students enrolling in these programs may choose among emphases that are primarily theoretical or those that are more applied.

Two graduate degrees and one certificate are offered through the Department of Linguistics and English Language: Linguistics—MA; TESOL Graduate Certificate; and TESOL—MA. Both MA degrees have two options—thesis or project.

In addition to the above, the department is responsible for American Sign Language.

Linguistics—MA

The purpose of the linguistics MA program is closely related to the department's definition of linguistics,

which is the scientific study of language. The program aims to prepare the student to become a language professional, prepare to go on to a PhD program if desired, or to go into the world as a competent practitioner of the skills expected of a linguist. A more applied, but popular emphasis in the department is a track that combines linguistics with computer skills. The education received includes such skills as analyzing language in its phonology, morphology, syntax, and semantics. It also introduces the student to such fields as sociolinguistics, anthropological linguistics, and especially computers and language if the student chooses to take that track. There are currently fifteen graduate students enrolled. Students average 2.8 years for completion.

Admission and Entry.

- Semesters of entry and application deadlines: spring, summer, fall; February 1 (U.S. and international).
- Entrance examinations: GRE general test; for international applicants, the TOEFL, with a minimum score of 237 (computer) or 580 (paper).
- Prerequisite: Ling 330 (or equivalent); competency in three languages:
 - English (ESL 404 is prerequisite for all nonnative English speakers; ESL 301, 302 if indicated by OPI results. Ling 330 and ESL 404 should be completed before or during the first semester of course work.)
 - Competency (200 level) in one language other than English (to be advanced to the 300 level or higher for the MA degree).
 - Competency (at least 12 credit hours or 200-level competency) in a second non-English language or 12 credit hours of approved computer science, computers and the humanities, or computing and information classes. One of the non-English languages must be a non-Germanic, non-Romance language.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 hours of

either thesis (Ling 699R) or project (Ling 698R) work.

- Required courses: Ling 521, 535, 540, 550, 558, 596, 630, 690, 698R/699R, plus 3 hours of a non-English-language class at the 300 level or higher (see Prerequisites).
- Thesis or project.
- Examinations: oral defense of thesis or project (consult department for details).

TESOL—Graduate Certificate

The TESOL Graduate Certificate (which differs from state teacher certification or endorsement) prepares the graduate to move into the TESOL profession. There are currently thirty graduate students in the TESOL Graduate Certificate Program. The average time for completion is 1.1 years.

Admission and Entry.

- Semesters of entry and application deadlines: summer, fall; February 1 (U.S. and international).
- Entrance examinations: for non-native speakers of English: TOEFL, with a minimum score of 237 (computer) or 580 (paper). Any deficiencies in English skills must be remedied to the satisfaction of the department before moving into the TESOL program.
- Prerequisite: Ling 330 (or equivalent); computer literacy; ESL 404 is prerequisite for all nonnative English speakers; ESL 301, 302 if indicated by OPI results. Ling 330 and ESL 404 should be completed before or during the first semester of course work.

Requirements for Graduate Certificate.

- Credit hours: minimum 16 course work hours after 3–6 prerequisite hours.
- Required courses: Ling 500, 540, 577, 579.
- Electives: 3 hours from Ling 555, 625, 631, 660, 672.
- Language learning experience (at least 200-level proficiency in a foreign language).

Teaching English to Speakers of Other Languages—MA

The master's program in TESOL has as its overall goal the preparation of students to become professionals in the field of teaching English to speakers of other languages. It offers two options—thesis or project. Such study at the master's level provides appropriate preparation for further study at the PhD level, as well as success in the workaday world of teaching English as a second or foreign language. A graduate will be trained in teaching skills, teacher training, testing, writing and reading pedagogy, and scholarly research and writing. There are currently twenty-four graduate students enrolled, with an approximate average of 2.7 years for completion of the degree, including time in the TESOL Graduate Certificate Program.

Admission and Entry.

- Application deadlines: application made while completing TESOL Graduate Certificate (see above).
- Application requirements: applicants must petition the department and be accepted by a review board for admission.
- Entrance examinations: GRE general test.
- Prerequisite: completion of TESOL Graduate Certificate; intermediate-level proficiency in a modern foreign language (through the 200 level or equivalent; language courses may be taken concurrently with TESOL graduate courses); letter of intent; brief proposal of thesis research or project.

Requirements for Degree.

Thesis Option

- Credit hours (33): minimum 27 course work hours (including 16 hours from TESOL Graduate Certificate) plus 6 thesis hours (Ling 699R).
- Required courses: Ling 595, 600, 695, 699R.
- Electives: 6 hours chosen from Ling 420, 521, 555, 625, 631, 641, 660, 672, 677, 678, 679, 696R.
- Thesis.
- Oral defense of thesis.

Project Option

- Credit hours (35): minimum 32 course work hours (including 16 hours from TESOL Graduate Certificate) plus at least 3 master's project hours (Ling 698R).
- Required courses: Ling 678 or 660; 695; 698R.
- Electives: 12 hours chosen from Ling 420, 521, 555, 625, 631, 641, 660, 672, 677, 679, 696R; IP&T 560, 564, 653, 654, 655, 662, 665; CHum 489R.
- Project.
- Oral defense of project.

For a more detailed description of the graduate program requirements, request a copy of the department's bulletin.

FINANCIAL ASSISTANCE

Financial assistance has been available over the past several years, particularly in the form of tuition and partial-tuition scholarships. One of the benefits that comes to both linguistics and TESOL students is the fact that many professors use research assistants, who at the present time number about twenty-five. Also, unique to the department for those studying TESOL is the opportunity to become a teaching assistant or part-time teacher at the English Language Center, where there are about forty part-time teachers.

COURSE DESCRIPTIONS

English Language

521R. Studies in Language. (3)

Prerequisite: ELang 324 or equivalent.

Topics vary.

524. History of the Book. (3)

Detailed study of the history and development of the book, including modern methods and practices.

525. Old English. (3)

Prerequisite: ELang 223, 324; or equivalents.

Old English grammar and vocabulary; traditional syntactical patterns in various types of Old English prose and poetry.

526. Middle English. (3)

Prerequisite: ELang 223, 324; or equivalents.

Detailed study of the principal dialects of Middle English, as illustrated in the literature of the period.

527. Early Modern English. (3)

Prerequisite: ELang 223, 324; or equivalents.

English language from about 1500 to 1800, with special emphasis on the language of Shakespeare and the King James Bible.

528. Varieties of English. (3)

Prerequisite: ELang 223, 324; or equivalents.

Regional and social variation in English, especially standard and nonstandard national and world Englishes, including English-based pidgins and creoles.

529. Structure of Modern English. (3)

Prerequisite: ELang 325 or instructor's consent.

English syntax through modern grammars; theories underlying those grammars.

620. Language and Literature. (3)

Literature from a language perspective; applying linguistic constructs to literary language; examining literary style; linguistic analysis of unfamiliar texts.

622. Language Policy and Planning in English Language Contexts. (3)

Theories and practices of governing entities as they formulate policies relating to the status and codification of the English language.

623. Discourse and Pragmatics. (3)

Prerequisite: ELang 223 or equivalent.

Mental and social processes involved in communicating through language; how we construct and interpret meaning through various contexts.

Linguistics

500. Introduction to Research in TESOL. (3)

Prerequisite: admission to TESOL graduate certificate or language acquisition MA program.

Research questions in language teaching and learning, literature review, research design, data collection, and interpretation. Understanding research methods as used in others' studies.

521. Phonology. (3)

Prerequisite: Ling 330.

Discriminative values of speech sounds: their function in the communicative process. Analysis of phonological data via postulation of underlying forms and derivational rules.

535. Semantics. (3)

Prerequisite: Ling 330.

Theory and practice of semantic analysis with special emphasis on Jakobsonian and Peircian semiotics.

540. Language Acquisition. (3)

Prerequisite: Ling 330 or equivalent.

First- and second-language acquisition viewed in light of psycholinguistics and sociolinguistics.

545. Psycholinguistics. (3)

Prerequisite: ELang 223 or Ling 330 or equivalent.

How the mind interprets, stores, retrieves, and produces language. Some examination of anatomical structures and physiological processes of the brain dealing with language.

550. Sociolinguistics. (3)

Research and theory in anthropological linguistics and sociolinguistics.

551. Anthropological Linguistics. (3)

Language in culture and society: development, typology, and description.

555. Teaching Culture. (3)

What culture is, how it affects language learners and teachers, development of U.S. lifestyle patterns.

558. Historical-Comparative Linguistics. (3)

Prerequisite: Ling 450 or equivalent.

Theory and method of language change via comparing daughter languages and reconstructing ancestral languages. Language universals and typology.

577. TESOL Methods and Materials. (4)

Foundation course surveying concepts, procedures, and techniques in second/foreign language teaching methodology and materials selection. Includes observation of actual classes and a mentored teaching practicum experience.

579. TESOL Student Teaching. (3)

Prerequisite: Ling 577 and departmental consent.

Sustained and supervised practice teaching at the English Language Center.

580R. Problems in Linguistics and Applied Linguistics. (1-3)

Advanced research in language acquisition, sociolinguistics, psycholinguistics, linguistics field study, applied linguistics.

581. Natural Language Processing. (3)

Prerequisite: good programming skills in at least one language (preferably LISP, Prolog, C, C++, Perl, or Java) and a knowledge of basic, discrete math. Upper-division linguistics/CHum students with less programming may enroll with instructor's consent.

Intensive overview of natural language processing including computational techniques, hands-on experience with linguistic technologies and corpora, language modeling approaches, and readings from current research.

590R. Readings in Linguistics. (1-3)

Prerequisite: instructor's consent.

Individual study of current linguistic literature. Occasional discussion sessions with instructor and other class members. Pass-fail grade only.

595. Research Design in TESOL. (1)
Prerequisite: Ling 500; admission to TESOL MA (thesis option) or language acquisition MA program; preliminary draft of rationale and review of literature for MA thesis.

Research design options for examining language acquisition and teaching. Designing research and writing the third chapter of the MA thesis. Students may enroll concurrently for up to 2 hours of Ling 699R (thesis) credit.

596. Research Design in Linguistics. (1)

Prerequisite: admission to linguistics MA program.

Research options in linguistics. Selecting thesis topic and writing first chapters of MA thesis. Students may enroll concurrently for up to 2 hours of Ling 699R (thesis) credit.

599R. Academic Internship: Linguistics. (1–9)

On-the-job experience under faculty supervision.

600. Research Data Analysis. (3)
Prerequisite: Ling 595.

Use of statistics and other procedures for analyzing and interpreting qualitative and quantitative research data. Writing chapters four and five of MA thesis.

615. Analogical Modeling of Language. (3)

Prerequisite: Ling 330 or equivalent.

Nondeclarative approaches to language description; work within the connectionist or neural net framework; analogical or exemplar modeling.

625. Pronunciation Theory and Pedagogy. (3)

Prerequisite: Ling 330 or equivalent.

Theories and practices of teaching and acquiring pronunciation. Detailed phonetic and phonemic study of American English pronunciation. Limited practicum included.

630. Topics in Syntax. (3)

Prerequisite: Ling 430 or equivalent.

Theory of generative grammar, emphasizing its history, the competition between different versions of generative theory, and their recent extensions.

631. Grammar Usage. (3)

Prerequisite: Ling 330 or equivalent.

Examining English grammar and usage as they reflect different theories about language description and applying this knowledge in the ESL/EFL classroom. Limited teaching practicum included.

641. Interlanguage Analysis. (3)

Prerequisite: Ling 330 or equivalent.

Methods for comparing and analyzing aspects of languages as they relate to language acquisition and teaching, including aspects of phonology, lexicon, grammar, syntax, and discourse.

660. Language Testing. (3)

Construction, analysis, use, and interpretation of language tests.

672. TESOL Reading and Writing. (3)

Processes involved in reading and writing, emphasizing how these skills are developed in a second/foreign language. Limited teaching practicum included.

677. Advanced Methodology. (3)

Prerequisite: Ling 577 or equivalent.

Advanced language-teaching methodology and its classroom application.

678. Advanced Materials Development. (3)

Prerequisite: Ling 577, 579.

Principles and procedures for designing, developing, and evaluating professional-quality language-teaching/learning materials of various types: textbooks, software, audiovisual aids, etc.

679. TESOL Supervision-Administration Internship. (3)

Prerequisite: instructor's consent.

Actual fieldwork in TESOL settings involving supervision, in-service training, and program administration.

690. Seminar in Linguistics. (2)

Prerequisite: Ling 630.

Advanced research and analysis of various linguistic problems.

695. TESOL Seminar. (1)

Prerequisite: completion of majority of TESOL MA courses and not-yet-defended thesis or project.

Integrating TESOL theory and practice; final preparation for TESOL career paths; refining and publicly presenting and defending thesis or project results.

696R. Academic Internship: TESOL. (1–9)

Prerequisite: graduate advisory committee chair's consent.

Field experience involving language teaching, testing, or materials development in a domestic or international setting. Supervised by graduate advisory committee chair.

698R. Master's Project. (1–3)

Prerequisite: Ling 660 or 678 for TESOL MA students.

Design, production, and evaluation of MA project in linguistics or TESOL. May involve various media: paper/print, computer software, audio recordings, or video recordings. Supervised by graduate advisory committee chair.

699R. Master's Thesis. (1–9)

FACULTY

ANDERSON, NEIL J., *Professor.* PhD, University of Texas, Austin, 1989. TESOL; Learning Styles and Strategies; Reading; Research.

BAKER, WENDY, *Assistant Professor.* PhD, University of Illinois, 2002. Second Language Acquisition; Psycholinguistics; Speech Perception and Production.

CHAPMAN, DON W., *Associate Professor.* PhD, University of Toronto, 1995. Old English Language and Literature; History of the English Language; Medieval Literature.

DAVIES, MARK, *Associate Professor.* PhD, University of Texas, Austin, 1992. Corpus Design; Typological-Functional Grammar; Spanish and Portuguese.

- EDDINGTON, DAVID**, *Associate Professor*. PhD, University of Texas, Austin, 1993. Experimental Linguistics; Phonology; Morphology; Spanish.
- EGGINGTON, WILLIAM G.**, *Professor*. PhD, University of Southern California, 1985. Varieties of English; Contrastive Rhetoric; Language Policy.
- ELZINGA, DIRK A.**, *Assistant Professor*. PhD, University of Arizona, 1999. Phonological Theory and Analysis; Uto-Aztecan Languages.
- GARDNER, DEE**, *Assistant Professor*. PhD, Northern Arizona University, 1999. ESL Literacy; Vocabulary Acquisition.
- GRAHAM, CHARLES R.**, *Associate Professor*. PhD, University of Texas, Austin, 1977. Second Language Acquisition/Attrition; ESL K-12; Spanish.
- HALLEN, CYNTHIA**, *Associate Professor*. PhD, University of Arizona, 1991. Rhetoric; Lexicography; Philology.
- HENRICHSEN, LYNN E.**, *Professor*. EdD, University of Hawaii, 1987. TESOL; Methodology; Materials Development; Teacher Education; ESL K-12; EFL.
- LONSDALE, DERYLE**, *Assistant Professor*. PhD, Carnegie-Mellon University, 1997. Formal Syntax and Semantics; Computational Linguistics; Salish Languages.
- LUTHY, MELVIN J.**, *Professor*. PhD, Indiana University, Bloomington, 1967. Phonology; Syntax; Finnish.
- MANNING, ALAN**, *Professor*. PhD, Louisiana State University, 1988. Linguistics Theory; Syntax.
- MELBY, ALAN K.**, *Professor*. PhD, Brigham Young University, 1976. Computer Aids for Translators; Syntax; French.
- OAKS, DALLIN D.**, *Associate Professor*. PhD, Purdue University, 1990. English Linguistics; Structure of English; Ambiguity; Old English Language.
- ROBERTSON, JOHN S.**, *Professor*. PhD, Harvard University, 1976. Historical Linguistics; Semiotics; Mayan Languages.

- SHELLEY, MONTE F.**, *Assistant Professor*. PhD, Brigham Young University, 1983. Text Retrieval and Analysis; Instructional Science; Instructional Evaluation.
- SKOUSEN, ROYAL**, *Professor*. PhD, University of Illinois, 1972. Analogical Modeling; Textual Criticism.
- TANNER, MARK**, *Assistant Professor*. PhD, University of Pennsylvania, 1991. Language Acquisition; TESOL, Sociolinguistics.

MATHEMATICS

Chair: Lynn E. Garner
Assistant Chair: Christopher P. Grant
Graduate Coordinator: Tyler J. Jarvis

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 Provo, UT 84602-6542
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THE PROGRAM OF STUDIES

The Department of Mathematics has approximately thirty graduate students, most of whom are supported by teaching assistantships. These students receive help with tuition as well as a stipend for the teaching support they provide in college algebra and calculus.

Two degrees are offered through the Department of Mathematics: Mathematics—MS; and Mathematics—PhD.

MS students study mathematics courses in preparation for careers in business, industry, government, or education. Other students use a master's degree in mathematics in preparation for a doctoral degree in mathematics or a closely related discipline or a discipline where technical competence is appreciated. Master's students graduate in an average of two years.

The department supports from ten to twelve PhD students. Designed for gifted and dedicated students, the program requires about four years past a master's degree. The department has special strength in the areas of applied mathematics, algebraic geometry, number theory, geometric topology, mathematical biology, and group theory, and linear analysis.

Mathematics—MS

The master of science is designed to prepare students for positions in business and industry. It also provides preparation for further graduate study leading to a doctoral degree.

Information for Degree—Thesis and Nonthesis Programs. Graduate mathematics courses: approved graduate mathematics courses include all classes numbered 500 and above with the exceptions of 501 and 502. Faculty sponsor: the graduate coordinator will assign each student a faculty sponsor on admission to the graduate program. Students should communicate with the sponsor as soon as they arrive on campus.

Admission and Entry.

- Semesters of entry and application deadlines: fall, summer, March 1; winter, September 15; spring, February 15.
- Entrance examinations: GRE general test and subject test in mathematics. Every international applicant whose native language is not English is required to submit Test of English as a Foreign Language (TOEFL) scores.
- Prerequisite: credit at least equivalent to BYU requirements for a baccalaureate degree in mathematics; a year's sequence in abstract algebra; and a year's sequence in advanced calculus.

Requirements for Degree—Thesis Program.

- Credit hours (30): minimum 24 course work hours in approved graduate mathematics, with a grade of C+ or better in each, including 12 hours in courses numbered 600 or above, and 6 thesis hours (Math 699R).
- Examination: pass a written master's examination. The examination should be passed by the end of the student's first semester of the second year. One more attempt is allowed.
- Thesis.
- Oral defense of thesis.

Requirements for Degree—Nonthesis Program.

- Credit hours:
Traditional Mathematics Option (32): minimum 30 course work hours in approved graduate mathematics, with a grade of C+ or better in each, including 18 hours in courses

numbered 600 or above and 2 project hours (698R).

Minor Option (35): minimum 24 course work hours in approved graduate mathematics, with a grade of C+ or better in each, including 6 hours in courses numbered 600 or above, 9 hours in an approved minor, and 2 project hours (698R).

Applied Option (38): minimum 24 course work hours in approved graduate mathematics, with a grade of C+ or better in each, including 6 hours in courses numbered 600 or above, 12 hours in areas related to applications of mathematics, and 2 project hours (698R). The 12 hours of applications must be approved by the graduate coordinator.

- Project and presentation: write a paper on an area of advanced mathematics and give a 45-minute presentation based on the paper.
- Examination: pass a written master's examination. The examination should be passed no later than the end of the first semester of the second year. One more attempt is allowed.

Mathematics—PhD

The doctoral program prepares students for a career in research and teaching at the university level or in basic research in a nonacademic setting.

Admission and Entry.

- Semesters of entry and application deadlines: fall, spring, summer, March 1; winter, September 15.
- Entrance examinations: GRE general test and GRE subject test in mathematics. Every international applicant whose native language is not English is required to take the Test of English as a Foreign Language (TOEFL).
- Prerequisite: undergraduate degree in mathematics or its equivalent; one year of mathematical analysis (or advanced calculus); one year of abstract algebra.

Requirements for Degree.

- Credit hours (54): minimum 36 course work hours in mathematics

courses numbered 600 or above with a grade of B or better in each, plus 18 dissertation hours (Math 799R).

- Required courses: complete at least 3 hours each in algebra, analysis, applied mathematics, and geometry/topology.

- Examinations:

Written Examinations: at the beginning of the second year, pass examinations in three of the four areas of algebra, analysis, applied mathematics, and geometry/topology. Four hours are allotted to each examination. A failed examination may be repeated once at the beginning of the winter semester of the student's second year, after which permission must be obtained from the department graduate committee to retake the examination. Passed examinations need not be repeated. Syllabi are available for each examination.

Oral Examination: pass an oral qualifying examination covering the background necessary for research in a specific area. The student, having chosen a research area and having a dissertation advisor approved, will, with the advisor, outline suitable examination topics. These topics must be approved by an examination committee of three (including advisor) appointed by the department graduate committee, which conducts the examination.

Defense of Dissertation: a final oral defense of the dissertation is conducted by a faculty committee consisting of the student's research advisor, two other readers of the dissertation (one of whom may be an outside examiner) and two other members of the faculty.

- Language requirement: demonstrate proficiency in two approved foreign languages that are currently in major use in the mathematical literature. At present the approved languages are French, German, Chinese, Japanese, Russian, and Italian. Another language in certain cases may be substituted for one of these if the department graduate committee approves. The committee will consider the

current usage of the language in the student's specialty area. The examinations are offered by the Mathematics Department twice a year. They are designed to test a student's ability to translate, with the aid of a dictionary, mathematical literature into scientifically correct English.

- Dissertation.

FINANCIAL ASSISTANCE

Most of the graduate students in mathematics are supported by teaching assistantships. The usual load for a TA is two 3-hour sections (6 hours) both fall and winter semesters. The usual load for a PhD candidate acting as a TA is two 3-hour sections for one semester and one 3-hour section the second semester (if the student is making adequate progress on the qualifying exams. Current TA's receive a salary as well as tuition support. For exact amounts of financial support, contact the Mathematics Department online at <http://www.math.byu.edu> or by e-mail at gradschool@math.byu.edu.

RESOURCES AND OPPORTUNITIES

Faculty research interests currently include: algebraic geometry; combinatorial group theory; geometric group theory; geometric topology; mathematical biology; matrix analysis; number theory; and partial differential equations.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

501. Real Numbers. (3)

Prerequisite: Math 371.

Extensive examination of various axiomatic descriptions of the real numbers and interrelationships among these descriptions.

502. Set Theory. (3)

Prerequisite: Math 371.

Zermelo-Fraenkel axioms for set theory, the axiom of choice, ordinal and cardinal numbers, and algebra of sets.

511. Numerical Methods for Partial Differential Equations. (3)

Prerequisite: Math 311; 303 or 347; or equivalents.

Finite difference and finite volume methods for partial differential equations. Stability, consistency, and convergence theory.

512. Numerical Analysis. (3)

Prerequisite: Math 311, 343, or instructor's consent.

Numerical matrix algebra, orthogonalization and least squares methods, unsymmetric and symmetric eigenvalue problems, iterative methods, Lanczos methods, advanced solvers for partial differential equations.

513R. Advanced Topics in Applied Mathematics. (3)

Prerequisite: instructor's consent.

521, 522. Methods of Applied Mathematics. (3 ea.)

Prerequisite: Math 334, 343; or equivalents.

Survey of current methods, continuous and discrete, including linear algebra, estimation, differential equations of equilibrium, eigenvalue and initial value problems; finite element, spectral, transform and difference methods; Fourier series, the Fourier matrix, fast Fourier transform; convolution.

530. Calculus of Variations. (3)

Prerequisite: Math 334, 343; or equivalents. Recommended: Math 315, 347, 541.

Euler-Lagrange equation, sufficient conditions, Hamilton's principle of least action, Dirichlet's principle; applications to mechanics, geometry, economics, eigenvalue problems, direct methods.

532. Complex Analysis. (3)

Prerequisite: Math 332 or instructor's consent.

Theory of complex analysis at the beginning graduate level. Topics: Cauchy integral equations, Riemann surfaces, Picard's theorem, etc.

534. Introduction to Dynamical Systems 1. (3)

Prerequisite: Math 315, 334; or equivalents.

Discrete dynamical systems; iterations of maps on the line and the plane; bifurcation theory; chaos, Julia sets, and fractals. Computational experimentation.

535. Introduction to Dynamical Systems 2. (3)

Continuous dynamical systems; introduction to invariant manifold theory; stability; bifurcation; low-dimensional chaotic systems; attractors.

541, 542. Real Analysis. (3 ea.)

Prerequisite: Math 214, 315, 343 for 541; Math 541 for 542.

Rigorous treatment of differentiation and integration theory, Lebesgue measure, Banach spaces.

543. Advanced Probability. (3)

Prerequisite: multivariable calculus. Recommended: Stat 441 or equivalent.

Combinatorial methods, random walk, Markov chains, stochastic processes.

547. Partial Differential Equations. (3)

Prerequisite: Math 214, 334; or equivalents.

Topics from elliptic equations, heat equations; wave equations, stability, Fourier methods, energy methods, existence of solutions, etc.

551, 552. Introduction to Topology. (3 ea.)

Prerequisite: Math 315 for 551; Math 551 for 552.

Axiomatic treatment of linearly ordered spaces, metric spaces, arcs, and Jordan curves; types of connectedness.

561, 562. Introduction to Algebraic Geometry. (3 ea.)

Prerequisite: Math 671 or concurrent enrollment.

Projective varieties, curves, surfaces, differential forms, and divisors.

565. Differential Geometry. (3)

Prerequisite: Math 214, 315; or equivalents. Recommended: Math 316 or equivalent.

Curves and surfaces, including the first and second fundamental forms, Gauss map, curvatures, geodesics, minimal surfaces, and the Gauss-Bonnet Theorem.

570. Matrix Analysis. (3)

Prerequisite: Math 343; or 302, 303; or equivalents.

Special classes of matrices, canonical forms, matrix and vector norms, localization of eigenvalues, matrix functions, applications.

587. Introduction to Analytic Number Theory. (3)

Prerequisite: Math 332 or equivalent; instructor's consent.

Arithmetical functions; distribution of primes; Dirichlet characters; Dirichlet's theorem; Gauss sums; primitive roots; Dirichlet L-functions; Riemann zeta-function; prime number theorem; partitions.

588. Introduction to Algebraic Number Theory. (3)

Prerequisite: Math 372 or equivalent; instructor's consent.

Algebraic integers; different and discriminant; decomposition of primes; class group; Dirichlet unit theorem; Dedekind zeta-function; cyclotomic fields; valuations; completions.

621, 622. Matrix Theory. (3 ea.)

Prerequisite: Math 570.

Zero-one matrices, spectra of graphs, Laplacian matrix, irreducible and primitive matrices, cycle expansion of the determinant, matrix completion problems, permanents, generalized matrix functions.

631, 632. Complex Analysis. (3 ea.)

Prerequisite: Math 332, 542 for 631; Math 631 for 632.

634, 635. Theory of Ordinary Differential Equations. (3 ea.)

Prerequisite: Math 315, 334.

641. Functions of Real and Complex Variables 1. (3)

Prerequisite: Math 542 or instructor's consent.

Fundamentals of measure and integration, Borel measures, product measures, L^p spaces, introduction to functional analysis, Radon Nikodym theorem, differentiation theory, Fourier transforms.

642. Functions of Real and Complex Variables 2. (3)

Prerequisite: Math 641.

Advanced topics chosen by the instructor, such as but not limited to probability, Haar measures, Fourier analysis on locally compact groups, Sobolev spaces, ergodic theory, differentiation theory of Radon measures, area and co-area formulas, etc.

643R. Special Topics in Analysis. (3)

Prerequisite: Math 642 or instructor's consent.

Advanced topics in analysis drawn from pure and applied mathematics. Possible topics include nonlinear partial differential equations, nonlinear functional analysis, asymptotic analysis, wavelets, numerical analysis, and analysis applied to biological and medical systems.

644. Harmonic Analysis. (3)

Prerequisite: Math 532, 542.

Harmonic analysis on the torus and in Euclidean space; pointwise and norm convergence of Fourier series and functional-analytic aspects of Fourier transforms emphasized.

645, 646. Functional Analysis. (3 ea.)

Prerequisite: Math 641 for 645; Math 645 for 646.

647, 648. Theory of Partial Differential Equations. (3 ea.)

Prerequisite: Math 347, 542 for 647; Math 647 for 648.

651, 652. General Topology 1, 2. (3 ea.)

Prerequisite: Math 552.

655. Algebraic Topology 1. (3)

Prerequisite: instructor's consent.

656. Algebraic Topology 2. (3)

Prerequisite: Math 655.

663, 664. Algebraic Geometry. (3 ea.)

Prerequisite: Math 672; Math 676 or concurrent enrollment.

Varieties, sheaves, and schemes; their cohomology and classification; applications.

671, 672. Algebra. (3 ea.)

Prerequisite: Math 372 for 671; Math 671 for 672.

675R. Special Topics in Algebra. (3)

Prerequisite: Math 672.

676. Commutative Algebra. (3)

Prerequisite: Math 671, 672.

Commutative rings, modules, tensor products, localization, primary decomposition, Noetherian and Artinian rings, application to algebraic geometry and algebraic number theory.

677. Homological Algebra. (3)

Prerequisite: Math 671, 672.

Chain complexes, derived functors, cohomology of groups, ext and tor, spectral sequences, etc. Application to algebraic geometry and algebraic number theory.

687R. Topics in Analytic Number Theory. (3)

Prerequisite: Math 387, 372, 532, and instructor's consent.

Current topics of research interest.

688R. Topics in Algebraic Number Theory. (3)

Prerequisite: Math 372, 387, and instructor's consent.

Current topics of research interest.

695R. Readings in Mathematics. (1–2)

698R. Master's Project. (2)

699R. Master's Thesis. (1–9)

751R. Advanced Special Topics in Topology. (3)

Prerequisite: instructor's consent and Math 651, 652.

Current topics in topology of research interest.

799R. Doctoral Dissertation. (Arr.)

FACULTY

- BAKER, ROGER C.**, *Professor*. PhD, University of London, 1971. Number Theory.
- BAKKER, LENNARD F.**, *Assistant Professor*. PhD, Queens University, 1997. Dynamical Systems; Celestial Mechanics.
- BARRETT, WAYNE W.**, *Professor*. PhD, New York University, 1975. Matrix Theory; Graph Theory; Combinatorics.
- BATES, PETER W.**, *Professor*. PhD, University of Utah, 1976. Nonlinear Partial Differential Equations; Dynamical Systems.
- CANNON, JAMES W.**, *Professor*. PhD, University of Utah, 1969. Geometric Topology; Geometric Group Theory.
- CARDON, DAVID A.**, *Assistant Professor*. PhD, Stanford University, 1996. Number Theory.
- CHAHAL, JASBIR S.**, *Professor*. PhD, Johns Hopkins University, 1979. Number Theory.
- CHOW, SHUE-SUM**, *Associate Professor*. PhD, Australian National University, 1983. Numerical Analysis.
- CLARK, DAVID A.**, *Associate Professor*. PhD, McGill University, 1992. Number Theory.
- CONNER, GREGORY R.**, *Associate Professor*. PhD, University of Utah, 1992. Geometric Group Theory; Combinatorial Group Theory; Topology.
- DALLON, JOHN C.**, *Assistant Professor*. PhD, University of Utah, 1996. Mathematical Biology.
- DORFF, MICHAEL J.**, *Assistant Professor*. PhD, University of Kentucky, 1997. Geometric Function Theory; Complex Analysis; Minimal Surfaces.
- DOUD, DARRIN M.**, *Assistant Professor*. PhD, University of Illinois, 1999. Number Theory.
- FEARNLEY, LAWRENCE**, *Professor*. PhD, University of London, 1970. Topology.
- FORCADE, RODNEY W.**, *Professor*. PhD, University of Washington, 1971. Combinatorics.
- GARNER, LYNN E.**, *Professor*. PhD, University of Oregon, 1968. Geometry; Commutative Algebra; Number Theory; Calculus Reform; Technology in Education.
- GLASGOW, SCOTT A.**, *Assistant Professor*. PhD, University of Arizona, 1993. Optics: Classical and Quantum.
- GRANT, CHRISTOPHER P.**, *Associate Professor*. PhD, University of Utah, 1991. Nonlinear Partial Differential Equations; Dynamical Systems.
- HALVERSON, DENISE M.**, *Assistant Professor*. PhD, University of Tennessee, 1999. Geometric Topology.
- HUMPHRIES, STEPHEN P.**, *Professor*. PhD, University of Wales, 1983. Low-Dimensional Topology; Classical Groups.
- JARVIS, TYLER J.**, *Associate Professor*. PhD, Princeton University, 1994. Algebraic Geometry.
- KUTTLER, KENNETH L.**, *Professor*. PhD, University of Texas, Austin, 1981. Abstract Methods for Nonlinear Partial Differential Equations and Inclusion.
- LAMOREAUX, JACK W.**, *Professor*. PhD, University of Utah, 1967. Topology.
- LANG, WILLIAM E.**, *Professor*. PhD, Harvard University, 1978. Algebraic Geometry.
- LI, XIAN-JIN**, *Assistant Professor*. PhD, Purdue University, 1993. Number Theory.
- LU, KENING**, *Professor*. PhD, Michigan State University, 1988. Applied Mathematics; Nonlinear Partial Differential Equations; Dynamical Systems.
- OUYANG, TIANCHENG**, *Professor*. PhD, University of Minnesota, 1989. Partial Differential Equations.
- POLLINGTON, ANDREW D.**, *Professor*. PhD, University of London, 1978. Number Theory.
- SMITH, WILLIAM V.**, *Professor*. PhD, University of Utah, 1978. Spectral Theory.
- SWENSON, ERIC L.**, *Assistant Professor*. PhD, Brigham Young University, 1993. Geometric Group Theory.
- VILLAMIZAR, VIANEY**, *Associate Professor*. PhD, Rensselaer Polytechnic Institute, 1987. Applied Mathematics.
- WRIGHT, DAVID G.**, *Professor*. PhD, University of Wisconsin, Madison, 1973. Geometric Topology.

MATHEMATICS EDUCATION

Chair: Gerald M. Armstrong
Associate Chair: Steven R. Williams
Graduate Coordinator: Charles N. Walter

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THE PROGRAM OF STUDIES

The Department of Mathematics Education offers two programs of graduate study (thesis and non-thesis) that culminate in the degree master of arts in mathematics education. Through the experiences these programs offer, graduate students will extend their own mathematical ways of thinking and deepen their understanding of a learner's way of thinking. Both programs are designed so that each of the department's ten to twelve graduate students can engage in joint work directly with faculty. The faculty is committed to close, detailed mentoring of each graduate student as an active member of our scholarly community—a community of exploration and inquiry whose practices seek to enact the departmental goal of excellence in research and teaching.

Mathematics Education—MA

Although the two programs differ slightly, both emphasize course work and interactions with faculty that (1) probe new mathematical understandings in both personal and social contexts and (2) immediately immerse students in the department's practice of exploration, inquiry, and analysis. Through the experiences in either program, a student will develop knowledge and ways of thinking that emphasize—and build on—the central importance of careful, detailed inquiry into how learners, at all levels, think and work to build mathematical understanding.

Admission and Entry.

- Semesters of entry and application deadlines: spring, summer, fall, March 1; winter, September 15 (U.S. and international).
- Required entrance examinations: GRE general test. Every international applicant whose native language is not English is required to submit Test of English as a Foreign Language (TOEFL) scores. BA in mathematics education or academic credentials at least equivalent (as determined by the Mathematics Education Department).
- Academic prerequisite: BA in mathematics education or equivalent academic credentials (as determined by Mathematics Education Department).
- Certification prerequisite: Recognized state teacher certification. (**Note:** Work required to meet the certification requirement may not be counted as part of a graduate program.)
- Advisement: The graduate coordinator, or a designee, is an entering student's academic sponsor (preliminary advisor). Entering students should contact their academic sponsor as soon as they arrive on campus.

Requirements for Degree—Thesis Program.

- Credit hours (30): minimum of 24 credit hours of *approved* course work plus 6 thesis hours (MthEd 699R). **Note:** Credit for prerequisite courses such as Math 315 or 371 or certification courses is not allowed.
- Required courses: MthEd 590, 591; Math 316, 372; 12 credit hours of approved 500- or 600-level mathematics or mathematics education course work (at least 6 credit hours must be considered mathematics content course work).
- Comprehensive examination: pass a written comprehensive examination. The exam should be taken immediately following completion of MthEd 590 and 591 and the basic mathematics sequence (algebra and analysis).
- Thesis: write a thesis based on an approved research project. **Note:** A

formal thesis proposal may be required.

- Oral defense of thesis.
- Minor (optional): any approved minor.

Requirements for Degree—Nonthesis Program.

- Credit hours (32): minimum of 30 approved course work hours plus 2 project hours (Math 698R). **Note:** Credit for prerequisite courses such as Math 315 or 371 or certification courses is not allowed.
- Required courses: MthEd 590, 591; Math 316, 372; 18 credit hours of approved 500- or 600-level mathematics or mathematics education courses (at least 9 credit hours must be considered mathematics content course work).
- Comprehensive examination: pass a written comprehensive examination. The exam should be taken immediately following completion of MthEd 590 and 591 and the basic mathematics sequence (algebra and analysis).
- Project paper: write a paper based on an approved project.
- Presentation: prepare and deliver a 45-minute presentation of the project paper.
- Minor (optional): any approved minor.

Mathematics Education—Minor

The mathematics education minor is designed for graduate students in fields related to mathematics who have an interest in mathematical thinking, mathematics learning, and mathematics teaching.

Requirements for Degree—Minor.

- Credit hours: 9
- Required courses: MthEd 590, 591, and 3 hours of approved 500- or 600-level mathematics education courses.
- Examination: pass a written examination based on the content of MthEd 590 and 591.

FINANCIAL ASSISTANCE

We see our graduate students as part of the department's active research

and teaching community. Thus, with few exceptions, graduate students receive support from the department in the form of teaching assistantships. This support includes (1) a stipend, for which the recipient performs teaching duties equivalent to two 3-hour classes each semester, and (2) a tuition scholarship for program courses. Information on current levels of support is available from the department.

RESOURCES AND OPPORTUNITIES

The research interests and active projects of the mathematics education faculty touch all levels of mathematics learning and learners. Designed as "research internships in mathematics education," the MA programs give each graduate student opportunities to engage with faculty directly in one or more research settings. Through course work and interactions with faculty, students are quickly included in the research community's practice of exploration, inquiry, and analysis. In our view, the development and refinement of ways of thinking and practices of inquiry that are needed for strong, meaningful investigations into issues emerging in the context of mathematics learning constitute a solid foundation on which students might build in two important ways: (1) to step confidently into the nation's top mathematics education doctoral programs and (2) to assume important leadership roles in practicing school mathematics education communities.

For a more detailed description of the graduate program requirements, send for a copy of the department's graduate handbook.

COURSE DESCRIPTIONS

550. Problem Solving. (3)

Prerequisite: strong background in undergraduate mathematics; instructor's consent.

Solving, building explanations, and presenting solutions to conceptually important problems. Connections between problem solving and understanding, and implications for teaching and learning.

562. Euclidean Geometry: Content, Learning, and Teaching. (3)

Prerequisite: Math 362 or equivalent.

Euclidean geometry, including classical problems, polyhedra, transformations, congruence, similarity, integer geometry, minimization; technology in geometry, Van Hiele levels, role of proof, and high school curriculum.

585R. Research Practicum. (3)

Prerequisite: graduate student status or instructor's consent.

Hands-on introduction to department research projects. Data analysis, discussion of theoretical frameworks, and reflection on possible implications.

590. Foundational Issues in Learning Mathematics. (3)

Prerequisite: teaching certificate or completion of student teaching.

Introduction to research in mathematics learning; mathematical thinking; cognitive, social, and philosophical approaches to describing mathematics learning. Includes lab experience in classrooms.

591. Scholarly Inquiry in Mathematics Education. (3)

Prerequisite: MthEd 590.

Introduction to scholarly inquiry in mathematics education; issues in research methodology. Includes lab experience in classrooms.

598R. Topics in Mathematics Education. (1-3)

Prerequisite: instructor's consent.

Includes specific research areas and curriculum studies of school mathematics topics (i.e., geometry, algebra, and calculus).

611R. Graduate Student Seminar. (1)

Prerequisite: instructor's consent.

Reading, discussing, and writing about relevant public discourse, policies, and issues in a broad arena of mathematics education.

695R. Readings in Mathematics Education. (1-3)

Prerequisite: instructor's consent.

698R. Master's Project. (2)

Prerequisite: instructor's consent.

699R. Master's Thesis. (1-9)

Prerequisite: instructor's consent.

FACULTY

ARMSTRONG, GERALD M., *Associate Professor.* PhD, University of Wisconsin, Madison, 1971. Real Analysis; Calculus Reform.

LAWLOR, GARY, *Associate Professor.* PhD, Stanford University, 1988. Minimal Surfaces.

LEATHAM, KEITH, *Assistant Professor.* PhD, University of Georgia, Athens, 2002. Preservice Mathematics Teacher Education; Teaching and Learning with Technology.

PETERSON, BLAKE E., *Associate Professor.* PhD, Washington State University, 1993. Mathematics Teacher Education; Number Theory; Geometry.

SIEBERT, DANIEL K., *Assistant Professor.* PhD, University of California, San Diego, 2000. Preservice Mathematics Teacher Education.

SPEISER, ROBERT DAVID, *Professor.* PhD, Cornell University, 1970. Mathematics Learning at All Levels; Cognition; Algebraic Geometry; Commutative Algebra.

WALTER, CHARLES N., *Associate Professor.* PhD, University of New Mexico, 1970. Mathematics Learning at All Levels; Cognition; Algebraic Geometry.

WILLIAMS, STEVEN R., *Associate Professor.* PhD, University of Wisconsin, Madison, 1989. Communication in Mathematics Classrooms; Advanced Mathematical Thinking.

MECHANICAL ENGINEERING

Chair: Larry L. Howell

Graduate Coordinator: Brent L. Adams

245 CB

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(801) 422-2625

THE PROGRAM OF STUDIES

The Department of Mechanical Engineering offers strong graduate programs in a variety of areas, including combustion processes; computational and experimental fluid mechanics; dynamic and mechatronic systems and controls; heat transfer; integrated product design and development; manufacturing systems and processes; and materials and materials processing. Specific research activities in these areas are described on the Mechanical Engineering Department Web page at <http://www.byu.edu/me>.

The Mechanical Engineering Department offers two graduate degrees: Mechanical Engineering—MS and Mechanical Engineering—PhD.

The graduate program in mechanical engineering has about ninety graduate students. The typical time to obtain an MS degree is approximately two years, whereas a PhD degree usually takes about four and a half years beyond the BS degree.

Mechanical Engineering—MS

The MS degree can be directed toward research into new engineering knowledge or practice as well as advanced methods of engineering design.

Admission and Entry.

- Semesters of entry and application deadlines: fall, spring, summer, January 15 (U.S. and international); winter, September 15 (U.S. and international).
- Entrance examinations: all applicants must submit scores for the

GRE general examination.

International applicants must also submit TOEFL scores.

- Prerequisite: BS degree in mechanical engineering or an allied discipline with approval; 3.0 GPA or above in last 60 hours for regular admission.

Requirements for Degree.

- Credit hours (30–39):
Thesis Option: minimum 30 hours including 6 thesis hours (MeEn 699R) and 6 hours of advanced mathematics or equivalent.
Nonthesis Option: minimum 39 course work hours including 6 hours of advanced mathematics or equivalent. At least half of the course work must be mechanical engineering courses. A maximum 3 hours of project work, such as 695R, may be included in the 39-hour total.
- Study list: each student must submit a study list of approved courses during the first semester.
- Prospectus: each student on the thesis option must submit a prospectus before beginning significant work on the thesis, preferably during the first semester.
- Annual review: after the first year students must have an annual progress review with their committee.
- Residency requirements: residency is required for the major part of the work toward the master of science thesis. This work must be completed under the specific direction of a graduate faculty member while the student is in residence at BYU (at least two consecutive semesters of 6 or more hours of registration). "In residence" is defined as (1) being registered for credit as a graduate student and (2) living and conducting research in the general vicinity of the university, where the student has ready access to research facilities and consultation with the faculty. Further, all work applying toward any master's project or thesis must be completely open for university review and publication. Any exceptions to the above must be supported by written approval

from the department and college and obtained in advance of any work being performed.

- Graduate Seminar: all MS students in residence in the department are required to attend at least 75 percent of the graduate seminars that are held on a weekly basis during fall and winter semesters. The seminars include technical presentations by graduate students, faculty members, and invited guests. MS students (thesis option) are required to present at least once during their graduate program, after completion of an accepted thesis prospectus.
- Examinations: The GRE general exam must be taken prior to admittance to the graduate program; international applicants are also required to take the TOEFL exam. An oral defense of the thesis for thesis option students is required for graduation.
- Time requirement: The MS student has one year minimum and five years maximum to complete the degree.
- 3.0 minimum GPA in graduate study.

Engineering Management—Minor

Offered to MS students in the College of Engineering and Technology, the engineering management minor provides a way to include some elements of modern management in a technical graduate program.

Requirements.

- The minor requires 9 hours. Mgt 501 and 511 are required courses. The other 3 hours are selected from Mgt 541, MBA 679 and 650, MPA 615, 622, 675, 676, OrgB 610, or approved Marriott School courses. Students should carefully plan how they will meet the requirements of the minor since these courses are taught only once a year.
- This minor should be declared as part of a student's graduate study list. Admittance approval to enroll in class will be derived from approved graduate study lists.

Mechanical Engineering—PhD

Study at the PhD level intensifies as faculty relationships become more professional and intense, often resulting in close friendships. Course work can be even more stimulating as it becomes apparent that material is not necessarily laid out neatly. Sometimes questions are raised without formal answers. This often leads to individualized research that raises technical maturity.

The PhD program is directed toward the creation of new knowledge. Each dissertation is expected to be a defense of new engineering practice, design, or knowledge and is expected to result in peer-reviewed archival publications. It is in this program that the excitement of new knowledge frontiers are examined and placed before the world.

Admission and Entry.

- Semesters of entry and application deadlines: fall, spring, summer, January 15 (U.S. and international); winter, September 15 (U.S. and international). U.S. applicants—entry all terms and semesters; international applicants—fall semester entry preferred.
- Entrance examinations: GRE general test is required. International applicants are also required to take the TOEFL exam.
- Prerequisite: BS degree (or equivalent) in mechanical engineering from a program accredited by the Accreditation Board for Engineering and Technology (ABET) with a minimum 3.0 GPA in the last 60 hours of technical and scientific course work. A BS in any other field requires provisional admission. Consult the department for specific details.

Requirements for Degree.

- Credit hours: a minimum 66 credit hours beyond the baccalaureate degree, which may include up to 18 hours of dissertation credit and 30 hours of combined master's course work and thesis credit (by committee approval) and must include 9 total credit hours of approved math and statistics.

Students who have completed an MS degree may not apply any additional undergraduate credit toward the PhD. However, up to 6 undergraduate credits may be applied to the PhD if taken as part of the MS degree or if taken by students who are not receiving a master's.

- Study list: a study list must be submitted during the first semester of doctoral study.
- Residency requirements: same as mechanical engineering MS residency requirements.
- Graduate Seminar: all doctoral students in residence in the department are required to attend at least 75 percent of the graduate seminars that are held on a weekly basis during fall and winter semesters. The seminars include technical presentations by graduate students, faculty members, and invited guests. Doctoral students are required to present at least twice during their graduate program.
- Comprehensive qualifying examination: a written examination must be taken within the first year of the PhD program (it may be retaken only once). Exams are offered in March and September of each year. Students should notify the graduate coordinator one month in advance of their intention to take an exam.
- Prospectus: a written prospectus must be submitted and defended orally before the dissertation committee at least one year prior to the oral dissertation defense.
- Dissertation: a minimum 18 hours of dissertation credit.
- Oral defense of dissertation.

Integrated Master's Program—BS/MS

Students who desire to obtain a master's degree in engineering, and who have been accepted to a department professional program, may elect to enter the integrated master's program at the end of the sophomore year or during the junior year of the engineering curriculum. The purpose of the program is to afford greater flexibility in scheduling

course work than is normally available through a traditional BS degree followed by an MS degree program.

In this program the BS degree must be received simultaneously with the MS degree. Specific requirements are the same as those listed for the mechanical engineering MS but include the following:

Admission and Entry.

- Application deadlines: formal application for admission to the program must be submitted to the Office of Graduate Studies at beginning of the junior year. Admission to graduate school must occur before taking the final 30 hours of course work. Application to graduate school must meet usual university graduate application deadlines.
- Application requirements: cumulative 3.0 GPA for previous 60 hours of course work.

Requirements for Degree.

- Cumulative 3.0 GPA or above in all courses to be counted toward master's degree.
- Study list: for both BS and MS programs must be filed at beginning of junior year.

Interdisciplinary Product Development—MS/MBA

The Mechanical Engineering Department and the Marriott School of Management offer a joint program in interdisciplinary product development (IPD) leading to a master of science degree in mechanical engineering and a master of business administration (MBA) degree. The program takes an average of two and a half years to complete. The degrees are approved and conferred separately by the two departments, but since course work for the two degrees may overlap and similarities between the two programs may be emphasized, the IPD program offers students significant advantages to separate programs in these two fields.

The IPD program addresses important needs for engineers, designers, and managers who excel in world-

class product development, which is a cross-functional process requiring both technical and managerial skills. The program provides students with undergraduate training in engineering the management skills of the MBA program along with advanced training in engineering. Courses teach specific expertise in product and process development through projects, industrial interaction, and research in development and interdisciplinary methods.

Students must apply to both the mechanical engineering MS program and the MBA program, mentioning their intention to participate in the IPD program in each statement of intent. After being admitted to both the MS and MBA programs, students are required to submit a brief application to the IPD program. This application is available through either the Mechanical Engineering Department or the Marriott School of Management.

FINANCIAL ASSISTANCE

The department offers research and teaching assistantships for graduate students. Graduate internships and tuition awards are also available for qualified students, but normally through a major professor. Select tuition scholarships are provided from industrial firms, as well.

Application for all awards may be obtained from the department and should be returned by March 15 for consideration for the following fall semester. Write to the Department of Mechanical Engineering.

RESOURCES AND OPPORTUNITIES

The College of Engineering and Technology, of which the Department of Mechanical Engineering is a part, has experienced rapid growth in funded research during the past decade.

Faculty research areas include: combustion; computer-aided design; controls; design methods; dynamic systems; fluid mechanics; heat trans-

fer; internal combustion engines; machining; manufacturing systems; mechanisms; metallurgy; optimization; robotics.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

500. (MeEn-CEEn) Design and Materials Applications. (3)

Prerequisite: CEEn 203; MeEn 372 or CEEn 321.

Applied and residual stress; materials selection; static, impact, and fatigue strength; fatigue damage; surface treatments; elastic deflection and stability—all as applied to mechanical design.

501. (MeEn-CEEn) Stress Analysis and Design of Mechanical Structures. (3)

Prerequisite: CEEn 321 or MeEn 372.

Stress analysis and deflection of structures; general bending and torsion with computer applications to mechanical and aerospace structure design.

502. (MeEn-CEEn) Composite and Smart Structures. (3)

Prerequisite: Math 303 or 334; CEEn 321 or MeEn 372; or equivalents.

Advanced composite structures; classical and energy approaches; introduction to smart-structures concepts.

503. (MeEn-CEEn) Plasticity and Fracture. (3)

Prerequisite: CEEn 203; MeEn 250; Math 303; senior standing or instructor's consent.

Tensor algebra; stress and deformation tensors; relationships between dislocation slip, yielding, plastic constitutive behavior, and microstructure development; cracks and linear elastic fracture mechanics.

506. (MeEn-CEEn) Continuum Mechanics and Finite Element Analysis. (3)

Prerequisite: background in linear algebra; CEEn 321 or MeEn 372; or equivalents.

Equilibrium, constitutive, and compatibility equations; closed-form solutions from elasticity; finite element theory, programming, and usage; membrane, axisymmetric, and solid elements. Application to heat transfer, fluid mechanics, and seepage.

507. (MeEn-CEEn) Computer Analysis and Optimization of Structures. (3)

Prerequisite: background in linear algebra; CEEn 321 or MeEn 372; or equivalents.

Matrix analysis of rods, shafts, beams, trusses, frames, and grids using the generalized stiffness method. Optimization methods for these structures. Organizing computer programs for structural analysis and structural optimization.

508. (MeEn-CEEn) Dynamics and Stability of Structures. (3)

Prerequisite: Math 303 or 334; CEEn 321 or MeEn 372; or equivalents.

Dynamic analysis of single degree-of-freedom, discrete multi-degree-of-freedom, and continuous systems. Static and dynamic stability of structures.

510. Compressible Fluid Flow. (3)

Prerequisite: MeEn 312.

One-dimensional analysis of compressible flow with area change, friction, heat transfer, shock waves, and combined effects, including experimental methods.

512. Intermediate Fluid Dynamics. (3)

Prerequisite: MeEn 312 or instructor's consent.

Review of fluid properties, Navier-Stokes equations, exact and similarity solutions, introduction to potential flows, stream functions, lift and drag, boundary layers, vorticity, and turbulence.

515. Applied Aerodynamics and Flight Mechanics. (3)

Prerequisite: MeEn 312.

Modern applied aerodynamics, including performance, stability, and control of aerospace vehicles.

521. Intermediate Thermodynamics (3)

Prerequisite: MeEn 322 or instructor's consent.

Equations of state, thermodynamic relations, Maxwells equations, equilibrium of single and multiphase mixtures, chemical reactions, and product equilibrium.

522. Combustion. (3)

Prerequisite: Chem 105, MeEn 322, or instructor's consent.

Introduction to first and second law ideal gas combustion systems along with elementary models of homogeneous and heterogeneous premixed and/or diffusion flames.

523. (MeEn-CEEn) Design of Aircraft Structures. (3)

Prerequisite: CEEEn 321 or MeEn 372 or equivalent.

Requirements, objectives, loads, materials, and tools for design of airframe structures; static behavior of thin-wall structures; durability and damage tolerance; certification and testing. Airframe component team design project.

525. Internal Combustion Engines. (3)

Prerequisite: MeEn 322 or equivalent.

Fundamental operating characteristics of internal combustion engines, spark and compression ignition. Thermodynamic cycle analysis, performance and emissions characterization, and dynamometer testing on CFR and production engines.

526. Gas Turbine and Jet Engine Design. (3)

Prerequisite: MeEn 312, 322; or equivalents.

Design and synthesis of land-based and aircraft gas turbines utilizing fluid flow and thermodynamic fundamentals. Extensive discussion of turbojets, turbofan, and turboprop engines.

531. Design of Control Systems. (3)

Prerequisite: MeEn 435.

Classical frequency response and time domain design of control systems. State variable control and computer simulation of control systems.

533. Digital Control Systems. (3)

Prerequisite: MeEn 531.

Design of digital controllers for mechanical systems, analysis using the z-transform, digital filter implementation, application of transform-based classical design methods, and modern state-space techniques.

534. Dynamics of Mechanical Systems. (3)

Prerequisite: MeEn 435 or equivalent.

Hamiltonian and Lagrangian dynamics, generalized coordinates, linear and angular momentum, Euler angles, rigid-body motions, and gyroscopic effects. Theory taught with applications integrated.

535. Mechanical Vibrations. (3)

Prerequisite: MeEn 435 or equivalent.

Introduction to energy methods for system modeling, eigenvalues and mode shapes, frequency response, and spectral characterization of vibrations.

537. Advanced Mechanisms, Robotics. (3)

Prerequisite: MeEn 337 or equivalent.

Kinematics and dynamics of advanced mechanisms, such as robots, with computer simulation of mechanism motion.

538. Compliant Mechanisms. (3)

Prerequisite: MeEn 337, 372; or instructor's consent.

Design and analysis of compliant mechanisms and compliant structures. Large-deflection analysis/force displacement relationships; mechanisms synthesis.

540. Intermediate Heat and Mass Transfer. (3)

Prerequisite: MeEn 440 or equivalent.

Analytical approaches to conduction, convection, and radiation heat transfer. Introduction to mass transfer.

541. Numerical Heat Transfer. (3)

Prerequisite: MeEn 440 or instructor's consent.

Heat transfer analysis by numerical methods. Finite difference and finite element methods, stability, and error analysis.

552. Intermediate Materials. (3)

Prerequisite: MeEn 250, 372; or equivalents.

Mechanical behavior of engineering materials including metals, plastics, ceramics, and composites.

556. Composite Material Design. (3)

Prerequisite: MeEn 250.

Macro- and micromechanical analysis and design of uni- and multidirectional composite materials.

557. Corrosion. (3)

Prerequisite: Chem 105 or equivalent.

Basic principles, eight common forms of corrosion, testing, materials, applications, modern theory, and high-temperature metal-gas reactions.

558. Metallurgy. (3)

Prerequisite: MeEn 250 or instructor's consent.

Fundamental principles of physical metallurgy and their application to design.

564. Digital Instrumentation and Mechatronic Systems. (3)

Prerequisite: MeEn 363 or equivalent.

Design and analysis of instrumentation systems, fundamental sensor characteristics, and computer data acquisition; time and frequency domain modeling with analog and digital components.

570. (MeEn-CEEn) Computer-Aided Engineering Software Development. (3)

Prerequisite: MeEn 273 or C programming.

Programming methods for the development of engineering software. Data structures, architecture, libraries, and graphical user interfaces, with applications to CAD systems.

572. (MeEn-CEEn-CS 557) Computer-Aided Geometric Design. (3)

Prerequisite: proficiency in C programming.

Mathematical theory of free-form curves and surfaces and solid geometric modeling. Bezier and B-spline curve and surface theory, parametric and implicit forms, intersection algorithms, topics in computer algebra, free-form deformation. Several programming projects required.

575. (MeEn-CEEn) Optimization Techniques in Engineering. (3)

Prerequisite: Math 302 and FORTRAN, C, or similar computer language.

Application of computer optimization techniques to constrained engineering design. Theory and use of state-of-the-art computer routines. Robust design methods.

576. Product Design. (3)

Prerequisite: MeEn 475 or instructor's consent.

Emerging design methodology and design strategies for complex systems, including decomposition methods and sensitivity analysis. Advanced CAD/CAE/CAM technologies applied to design.

577. Design for Manufacture and Assembly. (3)

Prerequisite: MeEn 372, Mfg 232; or equivalents.

Design practice for manufacturing considerations. Surface finish, tolerances, GD&T, and inspection and gaging principles. Application of computer-aided tolerancing and inspection.

578. CAD/CAM Applications. (3)

Prerequisite: advanced FORTRAN, C, or C++.

Principles and practices involved in parametric surface and solid modeling, associativity, NC tool path generation, etc. Construction of complete CAD models for design, analysis, and manufacture.

582. Manufacturing Systems Analysis and Design. (3)

Prerequisite: MeEn 250, 282; or equivalents.

Analysis, synthesis, and control of processing and assembly operations; mathematical modeling of manufacturing processes; systems integration; applying conservation principles to processing and assembly operations.

584. Manufacturing Process Machine Design. (3)

Prerequisite: MeEn 372 or equivalent.

Applying machine design principles to manufacturing process machines and tooling; integrating machine elements; precision machine design. Designing and analyzing of the effects of loading, combined stresses, and deflections on machine process capability. Sensors applied to process machines.

585. Manufacturing Competitiveness: Quality and Productivity. (3)

Prerequisite: Stat 361, MeEn 282; or equivalents.

Production strategies to improve quality, decrease cost, and increase throughput to create market advantage; effective production management systems; applying quality improvement tools to process data; theory of constraints and lean production.

586. Automation. (3)

Determining appropriate levels of manufacturing automation based on economics and productivity. Elements of automation, including sensors, robots, conveyors, and part feeders.

595R. Special Topics in Mechanical Engineering. (Arr.)

Prerequisite: departmental consent.

606. (MeEn-CEEn) Mechanics and Finite Elements for Beams, Plates, and Shells. (3)

Prerequisite: MeEn-CEEn 506.

Beam and plate theories, including flexural and shear deformation. Large displacement beam and plate theory. Axisymmetric shells and general curved shells. Finite element analysis of beams, plates, and shells, including buckling analysis.

608. (MeEn-CEEn) Nonlinear Analysis of Structures. (3)

Prerequisite: MeEn-CEEn 506, 508.

Geometrically nonlinear analysis of trusses, frames, membranes, and plates, including buckling and large deformation analysis. Materially nonlinear analysis, including plasticity and viscoelasticity.

609. (MeEn-CEEn) Spectral Analysis of Dynamic Systems. (3)

Prerequisite: Math 302 or equivalent.

Digital signal processing and analysis applied to computer-aided testing, system identification, and characterization of random processes. Applications include vibration and acoustic testing, seismic recording and analysis, and system identification for control.

611. Turbulence. (3)

Prerequisite: MeEn 512.

Introduction to turbulence, flow instability and transition, concept of scale, Reynolds averaging, wall-bounded and free shear flows, closure modes, and measurement techniques.

612. Advanced Fluid Dynamics. (3)

Prerequisite: MeEn 512.

Advanced numerical and analytical solution methods for problems in fluid dynamics.

625. Advanced Internal Combustion Engines. (3)

Prerequisite: MeEn 525.

Detailed combustion analysis of compression and spark ignition engines. Modeling concepts from zero to multidimensional. Engine heat transfer and I.C. engine diagnostics.

631. (MeEn-ECEn 683) Linear System Theory. (3)

Prerequisite: ECEn 483, 582.

Mathematical introduction to time-varying linear systems; state-space descriptions, controllability, observability, Lyapunov stability, observer-based control. Design of linear quadratic regulators and infinite-horizon Kalman filters.

642. Radiative Heat Transfer. (3)

Prerequisite: MeEn 540.

Advanced engineering analysis of radiant heat exchange between surfaces, in enclosures, and in absorbing, emitting, and scattering media.

643. Convective Heat Transfer. (3)

Prerequisite: MeEn 540.

Advanced engineering analysis of convective heat transfer in internal and external laminar and turbulent flows.

651. Microstructure and Properties. (3)

Prerequisite: MeEn 506.

Representations of inhomogeneous material microstructure, crystallography, orientation distribution functions, Fourier representations, bounding theories for defect-insensitive properties, grain boundaries and grain boundary engineering, microstructure sensitive design.

671. Advanced Strategies for Product Development. (3)

Prerequisite: MeEn 475 or instructor's consent.

Theory of advanced strategies for product development. New concepts developed, tested, and applied to real products.

672. Advanced Product Development Lab. (1-3)

Prerequisite: MeEn 475 or equivalent.

Laboratory experience to support advanced independent product development projects.

673. Advanced Design Tool Development. (3)

Prerequisite: MeEn 570 and instructor's consent.

Development and implementation of advanced tools and methods for mechanical design.

684. Production System Design. (3)

Prerequisite: MeEn 671 or instructor's consent.

Designing manufacturing systems for competitive advantage. Factory layout, simulation and design, and tooling design. Integration of manufacturing design into product development process.

685. (MeEn-Mfg 675) Advanced Manufacturing Strategies for Product Development. (3)

Prerequisite: Mfg 232 or equivalent.

Theoretical and experimental study of manufacturing methods such as machining, forming, casting, welding, etc.

695R. Special Problems for Master's Students. (1-3)

Prerequisite: department chair's consent.

697R. Research. (6-9)

699R. Master's Thesis. (1-9)

795R. Selected Topics in Mechanical Engineering. (1-3)

799R. Doctoral Dissertation. (1-18)

FACULTY

ADAMS, BRENT L., *Dusenberry Professor.* PhD, Ohio State University, 1979. Materials Design.

BLOTTER, JONATHAN D., *Associate Professor.* PhD, Virginia Polytechnic Institute and State University, 1996. Experimental Mechanics.

BONS, JEFFREY P., *Associate Professor.* PhD, Massachusetts Institute of Technology, 1997. Thermodynamics.

BOWMAN, W. JERRY, *Associate Professor.* PhD, Air Force Institute of Technology, 1987. Heat Transfer.

CHASE, KENNETH W., *Professor.* PhD, University of California, Berkeley, 1972. Computer-Aided Design for Manufacturing.

COX, JORDAN, *Associate Professor.* PhD, Purdue University, 1991. Computer-Aided Engineering.

HOWELL, LARRY L., *Associate Professor.* PhD, Purdue University, 1993. Compliant and Rigid Body Mechanisms; Solid Mechanics.

JENSEN, C. GREGORY, *Associate Professor.* PhD, Purdue University, 1993. Computer Graphics Software; Database Development; Machining.

JONES, MATTHEW R., *Associate Professor.* PhD, University of Illinois, 1993. Heat Transfer; Radiation Transfer.

MAGLEBY, SPENCER P., *Professor.* PhD, University of Wisconsin, Madison, 1988. Computer-Aided Design, Manufacturing; Intelligent Design Systems.

MAYNES, R. DANIEL, *Associate Professor.* PhD, University of Utah, 1997. Fluid Mechanics.

McLAIN, TIMOTHY W., *Associate Professor.* PhD, Stanford University, 1995. Dynamic Systems; Controls; Robotics.

NELSON, TRACY, *Associate Professor.* PhD, Ohio State University, 1998. Welding Engineering.

PARKINSON, ALAN R., *Professor.* PhD, University of Illinois, 1982. Optimization; Computer-Aided Engineering; Robust Design Methods.

RED, W. EDWARD, *Professor.* PhD, Arizona State University, 1972. Robotics; Automation; Applied Mechanics.

SMITH, CRAIG C., *Professor.* PhD, Massachusetts Institute of Technology, 1973. Dynamic Systems and Controls; Automation; Auto Safety.

SORENSEN, CARL D., *Associate Professor.* PhD, Massachusetts Institute of Technology, 1985. Design for Manufacture; Manufacturing Processes.

TODD, ROBERT H., *Professor.* PhD, Stanford University, 1971. Manufacturing Processes; Process Machine Development; Manufacturing Systems; Engineering Design.

TREE, DALE, *Associate Professor.* PhD, University of Wisconsin, 1992. Combustion; Internal Combustion Engines.

WEBB, BRENT W., *Professor.* PhD, Purdue University, 1986. Heat Transfer.

MICROBIOLOGY AND MOLECULAR BIOLOGY

Chair: Alan R. Harker

Graduate Coordinator: Brent L. Nielsen

775 WIDB

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THE PROGRAM OF STUDIES

The fields of microbiology and molecular biology are closely intertwined and are at the center of some of the most exciting current advances in the biological sciences. With the recent completion of genome-sequencing projects for a number of organisms, including human, the model plant species *Arabidopsis thaliana*, rice, and a growing number of bacteria and yeasts, including pathogenic organisms, this is an exciting time to study infectious and genetic diseases, genetic diversity, and gene expression.

Graduate programs in microbiology emphasize a combination of course work and research experience, and current theory and informational material are presented in a variety of courses. Graduate study in molecular biology offers a comprehensive and interdisciplinary degree program, supported by faculty from other departments in this college and from the Department of Chemistry and Biochemistry in the College of Physical and Mathematical Sciences. Supporting courses in molecular biology may include appropriate courses from any of these departments. Completion of degree programs in the department qualify students for further graduate study at other universities; employment in educational, industrial, medical, and research institutions; or postdoctoral opportunities leading to careers as research or academic scientists.

The Department of Microbiology and Molecular Biology offers four degrees: Microbiology—MS,

Microbiology—PhD, Molecular Biology—MS, and Molecular Biology—PhD. The advanced degrees offered by the Department of Microbiology and Molecular Biology contain subject emphases available in molecular mechanisms of (A) pathogenesis, (B) generation and maintenance of genetic diversity, and (C) gene expression.

Typically there are from twenty to thirty graduate students in the department at any time. Approximately one-third are PhD students and the remainder are MS students. Average times in the programs are about two years for an MS degree, about three years beyond a master's for the PhD degree, and about five years for the PhD, going directly from the bachelor's without the master's degree.

Admission and Entry.

All graduate programs in the department have the same admission and entry requirements:

- Semesters of entry and application deadlines: fall (preferred), February 1 (U.S. and international); winter, June 30 (U.S. and international).
- Entrance examination: GRE general test and TOEFL for international students.
- Statement of intent must explicitly state field of interest and career goals.

Microbiology—MS

Admission and Entry.

- Complete preceding general requirements.
- Prerequisite: baccalaureate degree in microbiology or equivalent discipline; one semester of statistics.

Requirements for Degree.

- Credit hours (30 hours): minimum 24 course work hours plus 6 thesis hours (MMBio 699R).
- Required courses: MMBio 601 and 691R. Additional courses as determined by student's advisory committee and approved by the department graduate committee.
- Semiannual progress reviews.
- Presentation of research at an annual retreat.

- Thesis: standard university thesis or journal publication format.
- Final public seminar on thesis research.
- Examination: (A) oral examination on course work and (B) oral examination on thesis.

Molecular Biology—MS

Admission and Entry.

- Complete preceding general requirements.
- Prerequisite: baccalaureate degree in molecular biology or biological or biochemical science, including one semester each of cell biology, molecular biology, biochemistry, and statistics.

Requirements for Degree.

- Same as MS in microbiology.

Microbiology—PhD

Admission and Entry.

- Complete preceding general requirements for microbiology MS. Any course deficiencies, as determined by the advisory committee, must be completed during the first year following admittance.

Requirements for Degree.

- Credit hours: candidates without a master's degree: 54 semester hours beyond the baccalaureate, including no more than 18 hours of dissertation credit. Minimum of 36 hours beyond master's degree, including 18 hours of dissertation (MMBio 799R).
- Required courses: MMBio 601 and 691R. Additional courses as determined by student's advisory committee and approved by department graduate committee.
- Semiannual progress reviews.
- Presentation of research at an annual retreat.
- Comprehensive examination: students will be required to pass a comprehensive examination after the formal course work is completed. *The format and content of the comprehensive examination will include a written grant proposal, an oral defense of that proposal, and course work.*

- Dissertation: standard university dissertation or journal publication format.
- Public seminar and oral defense of dissertation.

Molecular Biology—PhD

Admission and Entry.

- Complete preceding general requirements for molecular biology MS. Any course deficiencies, as determined by the advisory committee, must be completed during the first year following admittance.

Requirements for Degree.

- Same as PhD in microbiology.

FINANCIAL ASSISTANCE

Teaching and research assistantships are offered on a competitive basis by the department.

RESOURCES AND OPPORTUNITIES

Electron Optics Laboratory. In the Electron Optics Laboratory researchers can accomplish all standard electron optics procedures. The laboratory has transmission and scanning electron microscopes equipped with X-ray microanalysis capabilities, plus accessory equipment for freeze-fracture, freeze-drying, and necessary support facilities, including confocal laser scan microscopy.

Miscellaneous Campus Facilities. On the Provo campus are greenhouses, gardens, an arboretum, a small animal vivarium, and a tissue culture room. Laboratory facilities include gas chromatography-mass spectrometers, isotope ratio mass spectrometers, transmission and scanning electron microscopes, ultracentrifuges, visible ultraviolet and infrared spectrophotometers, gas chromatographs, high-performance liquid chromatographs, infrared gas analyzers, atomic absorption spectroscopy, polymerase chain reaction thermocyclers, flow cytometers, and many other items.

Faculty research interests currently include: clinical microbiology; clinical

laboratory science; immunology; molecular biology and genetics; oncology; parasitology; physiology; virology.

For a more detailed description of the graduate program requirements, send for a copy of the department's graduate student handbook.

COURSE DESCRIPTIONS

511. Selected Readings in Immunology. (1)

Prerequisite: MMBio 452 or equivalent.

Current literature in immunology.

516. Selected Readings in Emerging Diseases. (2)

Prerequisite: MMBio 453; 454 or 417; or equivalents.

Factors and mechanisms of emerging and reemerging infectious diseases.

518. Selected Readings in Special Pathogens. (2)

Prerequisite: MMBio 453 or equivalent.

Current literature dealing with special pathogens.

519. Selected Readings in DNA Diagnostics. (2)

Prerequisite: MMBio 441 or equivalent.

Current readings in the molecular identification of relationship cases and infectious disease agents.

554. Molecular Virology. (2)

Prerequisite: MMBio 354, 454; or equivalents.

Molecular mechanisms of virus architecture, attachment and entry pathways, replication strategies, oncogenesis, evolution, and mechanisms of pathogenesis.

557. Molecular Oncology. (2)

Prerequisite: MMBio 441 or equivalent.

Molecular basis of human cancers, emphasizing oncogenes, tumor suppressor genes, chromosomal instability, hereditary cancers, chemical and physical carcinogens, and viral carcinogenesis.

601. Molecular and Cellular Biology. (3)

Required course for beginning graduate students. Topics include fundamental principles of microbiology, molecular and cellular biology, and methods of scientific inquiry needed for graduate study.

602. Prokaryotic Physiology. (3)

Prerequisite: graduate status.

Advanced topics in prokaryotic physiology.

603. Molecular Aspects of Eukaryotic Cell Biology. (3)

Prerequisite: graduate status.

604. Advanced Immunology. (3)

Prerequisite: graduate status.

Advanced topics of immunology.

605. Pathobiology of Microbial Diseases. (3)

Prerequisite: graduate status.

Pathobiology of viral, parasitic, and bacterial diseases.

611. Advanced Cellular and Molecular Immunology. (2)

Current topics in immunology.

613. Selected Readings in Molecular Biology of Cancer. (2)

Prerequisite: MMBio 430 or equivalent.

Current literature on the molecular aspects of cancer etiology, prevention, and treatment.

614. Selected Readings in Signal Transduction and Eukaryotic Gene Regulation. (2)

Prerequisite: MMBio 430 or equivalent.

Current literature integrating cell signal pathways and the regulation of eukaryotic gene expression.

615. Selected Readings in Molecular Mechanisms in Apoptosis. (2)

Prerequisite: MMBio 430 or equivalent.

Current readings in apoptosis including review and study of recent mechanisms.

617. Scientific Review of Microbiology Topics. (2)

Recent progress and developing topics in microbiology.

631. Molecular Mechanisms in Virology. (2)

Prerequisite: MMBio 454, 605; Chem 581 or equivalent.

Selected topics in molecular functions of animal viruses.

632. Cell and Tissue Culture Techniques. (2)

Prerequisite: MMBio 365, 453, 605; Chem 581 or equivalent.

Advanced procedures in cell culture.

651R. Special Topics in Microbiology and Molecular Biology. (2-5)**691R. Graduate Seminar. (1)****695R. Research. (0.5-18)****699R. Master's Thesis. (1-9)****799R. Doctoral Dissertation. (1-9)****FACULTY**

ADAMS, BYRON J., *Assistant Professor*. PhD, University of Nebraska, 1998. Molecular Evolution and Systematics; Entomopathic Nematology.

BRADSHAW, WILLIAM S., *Professor*. PhD, University of Illinois, 1968. Developmental Biology.

BREAKWELL, DONALD P., *Associate Professor*. PhD, Purdue University, 1992. Microbial Ecology.

BRIDGEWATER, LAURA C., *Assistant Professor*. PhD, George Washington University, 1995. Transcriptional Regulation; Developmental Biology.

CRANDALL, KEITH A., *Associate Professor*. PhD, Washington University, 1993. Population and Evolutionary Biology.

EVANS, R. PAUL, *Assistant Professor*. PhD, Medical College of Virginia, 1983. Molecular Biology.

HARKER, ALAN R., *Professor*. PhD, University of Utah, 1982. Microbial Physiology.

JENSEN, JAMES B., *Professor*. PhD, Auburn University, 1976. Immunology; Parasitology.

JOHNSON, F. BRENT, *Professor*. PhD, Brigham Young University, 1970. Virology.

LEAVITT, RONALD W., *Professor*. PhD, University of California, San Diego, 1975. Molecular Biology.

MCCLEARY, WILLIAM R., *Associate Professor*. PhD, University of California, Berkeley, 1990. Microbial Physiology; Bacterial Signal Transduction.

MURRAY, BYRON K., *Professor*. PhD, Brigham Young University, 1971. Virology; Cancer Cell Biology.

NIELSEN, BRENT L., *Professor*. PhD, Oregon State University, 1985. Plant Molecular Biology.

O'NEILL, KIM L., *Professor*. DPhil, New University of Ulster, Northern Ireland, 1986. Genetics; Oncology.

ROBISON, RICHARD A., *Associate Professor*. PhD, Brigham Young University, 1988. Molecular Biology; Immunology.

WOODWARD, SCOTT R., *Professor*. PhD, Utah State University, 1983. Molecular Biology.

SCHOOL OF MUSIC

Director: Dale Monson

Graduate Coordinator: Thomas L. Durham

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THE PROGRAM OF STUDIES

The graduate programs of the School of Music are designed to preserve and develop an art form that is essential to human progress and well-being and to provide advanced instruction in the art and craft of music.

The School of Music provides graduate education in composition, music education, musicology, and music performance, and it maintains accreditation for all of its degree programs through the National Association of Schools of Music.

Two degrees are offered through the School of Music: Music—MA, Music—MM. A music minor is also offered.

The School of Music has an average enrollment of seventy graduate students from various U.S. and international areas. The average time for a student to complete a master's degree in music is two years.

Admission and Entry.

- Application deadlines, regardless of date of entry, are February 1 for U.S. students and January 1 for international students. Music education applicants for the MM and MA must enter summer term only.
- Application requirements: each applicant must submit specific materials relating to the applicant's intended specialization, which are reviewed by faculty members in that specialization. See specific areas.
- After being admitted, all students take the Graduate Placement Exam from 8:00 to 10:00 a.m. the Friday immediately preceding the beginning of fall semester classes. Any deficiencies diagnosed by the

exam must be removed during the first year of study. Students may arrange to take the exam earlier by contacting the graduate coordinator.

Music—MA

The master of arts degree is offered with specializations in Music Education and Musicology. A student whose background exhibits deficiencies in academic areas of music may be required to complete additional prerequisite courses during the MA.

MA in Music Education. This program offers the student an opportunity to contribute to the body of knowledge in music education by completing a thesis based on qualitative or quantitative research. The document will also be prepared in article form for submission to a scholarly journal or for presentation at an appropriate professional conference.

MA in Musicology. This program prepares students to be teachers and scholars who will promote musical understanding and appreciation for the arts. Students are expected to add to the body of historical and analytical publication that has increased understanding of the history, practice, sociology, and aesthetics of the cultural heritage of Western (and to a lesser degree non-Western) music. This effort should also increase awareness of cultural and historical diversity represented in concert programs and recordings.

Admission and Entry.

MA Music Education: submit the following with application:

- Outline of teaching history including schools, locations, dates, and courses taught.
- 800- to 1200-word proposal for a possible research study/thesis topic related to music education.
- Recording (preferably video) containing (1) a representative instrumental (major instrument) or vocal performance of the applicant and (2) a group performance conducted by the applicant.
- A sample of scholarly writing. The sample may be either previously

or newly written but must be a complete document of some kind.

MA Musicology: submit the following with application:

- Sample scholarly research paper.
- List of publications, if any.

Requirements for Specialization—Music Education.

- Prerequisite: baccalaureate degree in music or equivalent.
- Credit hours (32): minimum 26 course work hours plus 6 thesis hours (Music 699R).
- Required courses: Music 501, 699R; 4 hours from Music 671, 672, 673, 674, 675; Stat 510.
- Electives: 8–10 hours from graduate music courses and 7–9 hours from graduate courses outside the music field.
- Thesis.
- Examinations: (A) comprehensive written examination; (B) defense of thesis.

Requirements for Specialization—Musicology.

- Prerequisite: baccalaureate degree in music or equivalent.
- Credit hours (32): minimum 26 course work hours plus 6 thesis hours (Music 699R).
- Required courses: Music 500, 699R.
- Any four courses (12 hours) from 601, 602, 603, 604, 605, 606.
- Any three courses (9 hours) from Music 483, 503, 581, 583, 595, 596, 683.
- Electives: 3 hours in music or other departments.
- Thesis.
- Examinations: (A) department language proficiency examination, normally in French or German; (B) comprehensive written examination; (C) defense of thesis.

Music—MM

The master of music degree is offered with specializations in Composition, Conducting, Music Education, and Performance.

MM in Composition. The purpose of this specialization is to produce graduates who are prepared to make a significant contribution to the art form, either as composers or as

teachers and scholars in composition and theory, and to provide aesthetic enrichment to both the composer and listener.

MM in Conducting. Students develop advanced, personal conducting skills and techniques that are precise and suited to a variety of musical needs; attain confidence, poise, and clarity with the baton; learn effective rehearsal techniques; and become familiar with a variety of instrumental and choral scores representing the repertoire of various music periods and sacred and secular styles. They learn to convey through gesture music's power and gentleness and its directness and subtlety to both the performer and audience and to select and bring to the community the great masterpieces of instrumental and choral literature.

MM in Music Education. The focus of this program is on the professional improvement of music educators. Emphasis is placed on effective educational and musical leadership in classrooms and communities. Emerging graduates should be advocates and champions of musical excellence and should serve as exemplars to other music educators. A substantial professional improvement project accompanied by a descriptive scholarly document is required.

MM in Performance. The intent of the specialization is to prepare students with outstanding performance potential to be competitive in performance and teaching careers and to be advocates for the arts in their communities. They may help meet the needs for skilled performers of solo and small and large ensemble music, and they will be able to teach privately and help meet the considerable community demand for excellent private studio teachers.

Admission and Entry.

MM Composition: submit the following with application:

- Portfolio of four compositions in various media.
- Recording of two or more of these compositions.

MM Conducting: submit the following with application:

- Programs of concerts presented and lists of pieces rehearsed as a conductor.
- High-quality recording and, if possible, a videotape recording of a representative performance of a group trained and conducted by the applicant.
- (A) Choral Emphasis: a personal or recorded performance that demonstrates the applicant's ability to play four-part homophonic and polyphonic music at the keyboard. (B) Instrumental Emphasis: an audio or video recording showing proficiency on the applicant's major instrument.

MM Music Education: submit the following with application:

- Outline of teaching history including schools, locations, dates, and courses taught.
- 800- to 1200-word proposal for a possible master's project or thesis topic of interest to the applicant.
- Recording (preferably video) containing (1) a representative instrumental (major instrument) or vocal performance of the applicant and (2) a group performance conducted by the applicant.
- Video recording of the applicant teaching in a music setting.

MM Performance: submit the following with application:

- Recital programs and repertoire lists from undergraduate study.
- Personal performance audition at Brigham Young University (preferred) or a videotape or recording of the senior recital or equivalent performance (acceptable).

Requirements for Specialization—Composition.

- Prerequisite: baccalaureate degree in music composition or equivalent in previous training.
- Credit hours (32): minimum 26 course work hours plus 6 master's composition hours (Music 688R).
- Required courses: Music 500, 503, 606, 687R (6 hours) 688R (6 hours); 3 hours from 601, 602, 603, 604, 605; 6 hours from 581, 583, 591, 596, 683.

- Electives: 3 hours.
- Recital: strongly recommended.
- Project.
- Examination: (A) final oral examination; (B) defense of project.

Requirements for Specialization—Conducting.

- Prerequisite: baccalaureate degree in music;
- Credit hours: minimum 32 course work hours.
- Required courses: Music 500, 660R (conducting, 4 hours), ensemble (2 hours), 697A,B.
Band Emphasis: Music 510, 532, 595, 606, and 5 hours of electives in addition to electives listed below.
Choral Emphasis: Music 506, 507, 533R (6 hours), and electives in addition to electives listed below (6 hours)
Orchestra Emphasis: Music 508, 509, 532, 595, and electives in addition to the electives listed below (6 hours).
- Electives: 6 hours (3 hours for band emphasis) in nonperformance music graduate courses (as approved by graduate committee) from one or more of the following areas: music education, music history, or music theory.
- Examinations: (A) jury examination each semester of enrollment in 660R; (B) repertory examination; (C) final oral examination.
- Closure project: Music 697A,B.

Requirements for Specialization—Music Education.

- Prerequisite: public school music teacher certification; baccalaureate degree in music.
- Credit hours: minimum 32 course work hours including a professional improvement project (Music 698A,B).
- Required courses: Music 501, 595, 673, 674, 675; 6 hours from 532, 533R, 534R; 4 hours from 560R; 698A,B.
- Project.
- Examination: (A) comprehensive written examination; (B) final oral examination; (C) defense of project.

Requirements for Specialization—Performance.

- Prerequisite: baccalaureate degree in performance or equivalent; proficiency in German, French, and Italian diction for voice candidates.
- Credit hours: minimum 32 course work hours.
- Required courses:
Voice Emphasis: Music 500, 505R, ensemble (2 hours), 660R (6 hours), 665, 670R (2 hours), 694R in applied literature (2 hours), 697A,B (4 hours), and electives in addition to the electives listed below (4 hours).

Orchestral Instrument Emphasis: Music 500, 505R, large ensemble (2 hours), chamber ensemble (2 hours), 560R, 660R (6 hours), 665, 670R (2 hours), 694R in applied literature (2 hours), 697A,B (4 hours), and electives in addition to the electives listed below (2 hours). Scholarship students may have additional ensemble requirements. See your graduate advisor for details.

Keyboard Instrument Emphasis: Music 500, 505R, ensemble (2 hours), 591, 660R (6 hours), 665, 670R (2 hours), 694R in applied literature (2 hours), 697A,B (4 hours), and electives in addition to the electives listed below (2 hours). The ensemble requirement listed above includes 644R.

- Electives: 6 hours in nonperformance music graduate courses (as approved by graduate committee) from one or more of the following areas: music education, music history, or music theory.
- Examinations: (A) jury examination each semester of enrollment in 660R; (B) repertory examination; (C) final oral examination.

Music—Minor

The School of Music follows the general university requirements established for the graduate minor. The student must:

- Obtain the approval of the director of the School of Music.

- Select a graduate faculty member (approved by the director) to serve as a graduate committee member.
- Register for and complete 9 semester hours of approved graduate credit in the minor.
- Pass an oral or a written comprehensive examination in the minor (prepared by the minor committee member).

FINANCIAL ASSISTANCE

The School of Music offers four types of graduate awards: assistantships, internships, performance awards, and scholarships. Application for financial aid is made on forms available from the School of Music's graduate office.

RESOURCES AND OPPORTUNITIES

The Harris Fine Arts Center, which houses the School of Music, contains two concert halls and numerous practice rooms for music, dance, and theatre.

Graduate students have opportunities to perform individually and with groups in both the Madsen Recital Hall and the de Jong Concert Hall in the Harris Fine Arts Center.

For a more detailed description of the graduate program requirements, request a copy of the department's graduate handbook.

COURSE DESCRIPTIONS

500. Musical Research

Techniques. (2)

Prerequisite: graduate standing.

501. Music Education Research Techniques. (2)

Prerequisite: graduate standing.

503. Aesthetics. (3)

Prerequisite: Music 304 or equivalent.

Fundamental questions of aesthetic theory from classical antiquity to the present, emphasizing musical aesthetics.

505R. Applied Literature. (2)

Prerequisite: minimum of one enrollment in Music 402–407.

Continuation of Music 402–407.

506. Choral Literature 1. (2)

Prerequisite: instructor's consent.

Concentrated analytical study and application of choral literature through Beethoven.

507. Choral Literature 2. (2)

Prerequisite: instructor's consent.

Concentrated analytical study and application of choral literature from post-Beethoven to the present.

508. Orchestra Literature 1. (2)

Prerequisite: instructor's consent.

Concentrated analytical study and application of orchestral literature of the baroque and classical eras.

509. Orchestra Literature 2. (2)

Prerequisite: instructor's consent.

Concentrated analytical study and application of orchestral literature of the romantic era and the twentieth century.

510. Band Literature. (2)

Prerequisite: instructor's consent.

Concentrated study of band literature through analysis and conducting.

532. Score Preparation and Conducting: Instrumental. (2)

Prerequisite: instructor's consent.

533R. Choral Conducting and Development. (2)

Principles and practices of score preparation, conducting, and choral development as elements of choral artistry.

534R. Score Preparation and Direction: Jazz. (2)

560R. Performance Instruction. (2)

Prerequisite: graduate music major status.

Performance instruction for students not specializing in performance and for performance students wishing to study secondary instruments. Fee.

562R. Orchestral Repertoire. (1)

Prerequisite: concurrent registration in Music 460R or 660R or instructor's consent.

Performance instruction in standard orchestral repertoire.

570. Music for Elementary School Teachers. (2)

Prerequisite: Music 371, 471, or elementary music teaching experience.

Experiences in teaching various music activities in the elementary school.

571. Elementary Education Music Pedagogy. (2)

Prerequisite: Music 371 and equivalent of elementary education teaching minor in music.

Orff, Dalcroze, and Kodaly materials and techniques.

575R. Summer Music Workshops and Clinics. (1–4) On dem.

576. Fundamentals and Techniques of the Marching Band. (2)

Prerequisite: music education major status; Music 294, 296.

Planning, charting, and scoring for marching bands.

581. Twentieth-Century Orchestration. (3)

Prerequisite: Music 481.

New techniques for standard and new instruments; analysis and listening.

583. Sixteenth-Century Counterpoint. (3)

Prerequisite: Music 483.

Strict modal counterpoint in sixteenth-century style (Palestrina); includes species, text setting, and motet.

591. Advanced Topics in Keyboard Harmony. (2)

Prerequisite: Music 407.

Topics vary.

595. Score Analysis. (2)

Analysis of representative choral and instrumental works from the Renaissance through contemporary styles.

596. Schenker Analysis. (3)
Prerequisite: Music 308, 395; or equivalents.

Schenker's system of tonal analysis.

599R. Academic Internship. (1–6)
Prerequisite: instructor's consent.

Internship in creative, performing, producing, or teaching applications of major course work.

600R. Topics in Music. (1–3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

601. Music in the Middle Ages. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

602. Music in the Renaissance. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

603. Music in the Baroque Era. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

604. Music in the Classic Period. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

605. Music in the Romantic Period. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

606. Music of the Contemporary Period. (3)
Prerequisite: Music 301, 302, 303, 304, or equivalent.

614R. Concert Choir. (1)

615R. University Singers. (1)

616R. Opera Workshop. (1)
Prerequisite: audition; instructor's consent.

Training and experience in operatic choral music and stage movement.

617R. Opera Ensemble. (1–3)
Prerequisite: audition; instructor's consent.

Training and experience in operatic excerpts, chamber opera, and full productions for operatic soloists.

619R. Music Theatre Performance. (1–3)

626R. Wind Symphony. (1)

634R. Synthesis. (1)

638R. Philharmonic Orchestra. (1)

639R. Chamber Orchestra. (1)

641R. Brass Chamber Music. (1)

642R. Early Music Ensemble. (1)

643R. Guitar Ensemble. (1)

644R. Keyboard Ensemble. (1)

645R. Percussion Ensemble. (1)

646R. String Chamber Music. (1)

648R. Woodwind Chamber Music. (1)

649R. Solo Recital. (2)
Prerequisite: concurrent registration in Music 660R. Available only to students who began their programs prior to fall 2000.

660R. Performance Instruction: Major. (2)
Prerequisite: completion of undergraduate performance proficiency requirements and audition; primary instrument only.

For performance specialization.
Fee.

665. Pedagogy. (2)
Prerequisite: completion of appropriate undergraduate pedagogy courses or equivalent.
Advanced pedagogical studies.

670R. Supervised Teaching. (2)
Prerequisite: graduate music major status.

Supervised private and group instruction.

671. Influence of Music on Behavior. (2)
Variables that influence musical behavior and effects of music on nonmusical behavior.

672. Psychology of Music. (2)
Psychoacoustical properties of musical phenomena and the neurological aspects of music perception and performance.

673. Historical and Social Foundations of Music Education. (2)
Leaders, events, and trends in history of music education, emphasizing sociological implications.

674. Philosophical and Aesthetic Foundations of Music Education. (2)

Questions related to teaching music in the public schools.

675. Theories of Music Learning and Motivation. (2)

Applications of psychology to teaching and learning music.
Research paper required.

683. Twentieth-Century Counterpoint. (3)
Prerequisite: Music 583.

Counterpoint from the works of Schoenberg, Stravinsky, Crumb, Lutoslawski, and others.

687R. Composition. (3)

688R. Composition for Master's Degree. (1–6)
Prerequisite: graduate music faculty's consent, based on evidence of ability in composition manifested in preliminary work.

694R. Independent Readings. (1–3)
Prerequisite: graduate coordinator's consent.

697A. Scholarly Paper for Master of Music Degree. (2)

Preparation of formal paper related to music of graduate recital. Supervised by the student's graduate advisor, committee chair, or other appropriate faculty member.

697B. Recital. (2)

698A. Master's Project—Professional Improvement Project. (2)

Identifying and delineating a project. Study list constructed and advisor assigned.

698B. Master's Project—Professional Improvement Project. (2)

Presentation of project and written report.

699R. Master's Thesis. (1–9)
Prerequisite: department graduate faculty's consent.

FACULTY

- ANDERSON, RICHARD P., *Associate Professor*. DMA, University of Colorado, 1986. Piano Pedagogy.
- ASPLUND, CHRISTIAN T., *Associate Professor*. DMA, University of Washington, 1998. Theory and Composition.
- BACHELDER, DANIEL F., *Professor*. PhD, Brigham Young University, 1976. Trombone and Brass Performance and Pedagogy.
- BELKNAP, MONTE, *Associate Professor*. MM, University of Cincinnati, 1994. Violin Performance.
- BIGELOW, A. CLAUDINE, *Assistant Professor*. DMA, University of Maryland, 2002. String Performance and Pedagogy.
- BLACKINTON, DAVID P., *Professor*. DMA, Catholic University of America, 1975. Band Conducting; Trumpet and Brass Performance and Pedagogy.
- BOREN, MURRAY E., *Assistant Professor*. DMA, City University of New York, 2002. Composition and Theory.
- BROOMHEAD, PAUL, *Assistant Professor*. PhD, University of Washington, 1999. Music Education.
- BROUGH, RONALD P., *Associate Professor*. DA, University of Northern Colorado, 1997. Percussion Performance and Pedagogy.
- BROWN, DAVID C., *Associate Professor*. MM, University of Toledo, 1997. Trumpet Performance and Pedagogy.
- BUSH, DOUGLAS E., *Professor*. PhD, University of Texas, 1982. Musicology; Organ.
- CALL, R. STEVEN, *Associate Professor*. PhD, University of Utah, 2000. Music Education.
- CHRISTENSEN, RUTH, *Assistant Professor*. DMA, University of Michigan, 1999. Vocal Performance.
- CLAYTON, APRIL, *Assistant Professor*. DMA, The Julliard School of Music, 2001. Flute Performance.
- COOK, R. DONALD, *Associate Professor*. DMA, University of Kansas, 1987. Organ Performance and Pedagogy.
- DABCZYNSKI, ANDREW, *Professor*. PhD, University of Michigan, 1994. Music Education; Strings.
- DAYLEY, K. NEWELL, *Professor*. DA, University of Northern Colorado, 1986. Brass Performance and Pedagogy.
- DURHAM, THOMAS L., *Professor*. PhD, University of Iowa, 1978. Theory and Composition.
- GIOVANNETTI, GERALYN, *Professor*. DMA, University of Michigan, 1990. Oboe and Woodwind Performance and Pedagogy.
- HALL, ROSALIND, *Assistant Professor*. MM, Brigham Young University, 1992. Choral Conducting.
- HANSEN, H. ERIC, *Associate Professor*. MM, Peabody Conservatory of Johns Hopkins University, 1989. Performance.
- HARKER, BRIAN C., *Assistant Professor*. PhD, Columbia University, 1997. Musicology.
- HICKS, MICHAEL D., *Professor*. DMA, University of Illinois, 1984. Theory and Composition.
- HOLDEN, SCOTT L., *Assistant Professor*. DMA, Manhattan School of Music, 2002. Piano Performance and Pedagogy.
- HOPKIN, J. ARDEN, *Professor*. DMA, University of Rochester, 1978. Voice Performance and Pedagogy.
- HOWARD, LUKE, *Associate Professor*. PhD, University of Michigan, 1997. Musicology.
- JACCARD, JERRY L., *Associate Professor*. EdD, University of Massachusetts, 1995. Music Education.
- JESSOP, SCOTT G., *Associate Professor*. PhD, Brigham Young University, 1980. Music Education.
- JOHNSON, STEVEN P., *Professor*. PhD, University of California, Los Angeles, 1989. Musicology.
- JONES, STEPHEN M., *Associate Professor*. DMA, University of Cincinnati, 1989. Theory and Composition.
- KATSEANES, KORY, *Professor*. MM, University of Utah, 1979. Orchestral Conducting.
- KENNEY, SUSAN HOBSON, *Associate Professor*. MA, Brigham Young University, 1978. Elementary Music Education.
- LINDEMAN, STEPHAN D., *Associate Professor*. PhD, Rutgers University, 1995. Music Theory.
- LOWE, LAURENCE M., *Professor*. MM, University of Rochester, 1981. Horn and Brass Performance and Pedagogy.
- MONSON, DALE E., *Professor*. PhD, Columbia University, 1982. Musicology.
- PEERY-FOX, IRENE W., *Professor*. DMA, Peabody Conservatory of Johns Hopkins University, 1987. Piano Performance and Pedagogy.
- PETERSON, DONALD L., *Associate Professor*. DMA, Arizona State University, 1986. Music Education.
- POWLEY, E. HARRISON, *Professor*. PhD, University of Rochester, 1974. Musicology.
- RANDALL, DAVID M., *Professor*. DMA, University of Iowa, 1970. Clarinet and Woodwind Performance and Pedagogy.
- REED, JULIE B., *Assistant Professor*. MM, University of Southern California, 1975. Cello Performance.
- RICKS, STEVEN L., *Assistant Professor*. PhD, University of Utah, 2001. Theory and Composition.
- ROBISON, CLAYNE W., *Professor*. DMA, University of Washington, 1973. Vocal Performance and Pedagogy.
- SARGENT, DAVID H., *Professor*. DMA, University of Illinois, 1975. Theory and Composition.
- SHUMWAY, JEFFREY L., *Professor*. DM, Indiana University, 1982. Piano Performance and Pedagogy.
- SMITH, CHRISTIAN B., *Assistant Professor*. MM, Brigham Young University, 1993. Bassoon Performance Instruction.
- SMITH, RAYMOND, *Professor*. DM, Indiana University, 1982. Saxophone and Woodwind Performance and Pedagogy.
- STAHEL, RONALD J., *Professor*. DMA, University of Southern California, 1977. Choral Conducting.
- VINCENT, LAWRENCE P., *Professor*. DMA, University of Michigan, 1981. Vocal Performance and Pedagogy.

NEUROSCIENCE CENTER

Director: Edwin Lephart

633 WIDB
Provo, UT 84602
(801) 422-1218

THE PROGRAM OF STUDIES

This center represents three academic colleges (Biology and Agriculture, Physical and Mathematical Sciences, and Family, Home, and Social Sciences) and three departments (Physiology and Developmental Biology, Chemistry and Biochemistry, and Psychology). Neuroscience is defined as the study of the development and function of the central nervous system and its connection to influencing/regulating behavior. The study of neuroscience at the graduate level requires the tools provided by training in calculus, general biology, genetics, physiology, molecular biology, chemistry, physics, psychology, research design, and analysis of molecular mechanisms to biochemical pathways that influence behavior.

For degree programs related to neuroscience, see the Department of Physiology and Developmental Biology.

COURSE DESCRIPTIONS

601. Graduate Neuroscience. (3)

Prerequisite: Neuro 460, 480, 481; or equivalents.

Student presentation of current primary literature. Team taught.

645R. Neuroscience Laboratory. (2)

Modern research instrumentation and current neuroscience research procedures.

655R. Neuroscience Research Presentations. (1)

Topics vary. See current class schedule.

665R. Neuroscience Graduate Seminar. (1)

Research topics presented by faculty and visiting scientists. Required every semester in residence.

FACULTY

For faculty listings, refer to the BYU Undergraduate Catalog.

COLLEGE OF NURSING

Dean: Elaine Sorensen Marshall

Graduate Coordinator: Mary Williams

500 SWKT
Provo, UT 84602-8606
(801) 422-5626

THE PROGRAM OF STUDIES

The graduate program, administered by the College of Nursing, has four major goals: (1) to prepare expert clinicians in a nursing specialty; (2) to prepare leaders who implement changes in health care; (3) to prepare nurses who utilize research for solutions to clinical problems; and (4) to prepare nurses for doctoral study.

The College of Nursing is a member of the Council of Baccalaureate and Higher Degree Programs of the National League for Nursing, the American Association of Colleges of Nursing, and the Western Council on Higher Education in Nursing. The program is accredited by the National League for Nursing Accrediting Commission and approved by the Utah State Board of Nursing.

The College of Nursing offers one degree in nursing—the master of science—in which two specialty areas are available: Family Nurse Practitioner and Adult Medical-Surgical Clinical Nurse Specialist. Contact the College of Nursing for details about these programs.

The National League for Nursing Accreditation Commission is a resource for further information. Contact at NLNAC, 350 Hudson Street, New York, NY, 10014, telephone (212) 989-9393.

Approximately forty students are enrolled in the College of Nursing's graduate program. The programs can be completed in approximately two to three years, although five years are allowed.

Nursing—MS

The master of science degree program emphasizes clinical expertise and includes nursing theories and concepts as well as extensive clinical experience. Research is an important component of the program, and students are required to write a thesis, develop an innovative clinical project, or complete a critical appraisal of a relevant clinical problem.

Admission and Entry.

- Semesters of entry and application deadlines: spring term only, December 1 (U.S. and international).
- Recommendations: three letters of recommendation from former teachers or employers.
- Personal statement: brief (three pages or fewer) prepared statement of personal philosophy and goals for graduate education.
- GPA: minimum 3.0 GPA for last 60 hours.
- Interview.
- Graduate Record Examination general test.
- Impromptu writing experience.
- Resumé.
- Prerequisite: baccalaureate degree in nursing.
- License: current RN licensure in Utah in good standing.
- Completion of basic statistics course.
- Completion of an undergraduate pathophysiology course.
- Transportation: candidates may be required to travel to gain experience in a variety of hospitals and clinics and to visit agencies and client homes; therefore, access to a car is necessary.
- Student malpractice insurance: the university incurs the cost for this insurance.

Requirements for Degree.

- Credit hours:
Adult Medical-Surgical Clinical Nurse Specialist Specialization (50): minimum 44 course work hours plus 6 thesis or project hours (Nurs 698R or 699R).
Family Nurse Practitioner Specialization (50): minimum 44 course work hours plus 6 thesis or project hours (Nurs 698R or 699R).

- Required courses:
Adult Medical-Surgical Clinical Nurse Specialist Specialization: Nurs 555, 600, 601, 605, 619, 621, 627, 629, 651, 653, 655, 657, 659R; 698R or 699R.
Family Nurse Practitioner Specialization: Nurs 555, 600, 601, 605, 619, 621, 622, 627, 629, 630, 632, 635R; 698R or 699R.
- Electives: determined in consultation with graduate committee.
- Thesis: thesis or project.
- Examination: oral defense of thesis or project.

FINANCIAL ASSISTANCE

The College of Nursing actively seeks financial resources to assist students. State and governmental funds are available, and RNs can usually find local part-time work. The university also has limited funds available. Students who need financial aid should contact the College of Nursing graduate coordinator. University awards are in the form of internships and assistantships.

Assistantships. Students must be registered and able to meet the skill and credit-hour requirements for the available teaching and research assistantships. For more information, students should meet with the college graduate coordinator.

Scholarships. Scholarships, awarded on the basis of GPA and need, are available to degree-seeking master's students. Recipients must take at least 2 credit hours per semester to maintain the scholarship. They must also maintain at least a 3.0 GPA. See the college graduate coordinator or the graduate secretary for more information.

RESOURCES AND OPPORTUNITIES

Research Center. The college research center, available to faculty and graduate students, is equipped with computer stations and software supporting statistical quantitative data analyses and qualitative data management. The center has graph-

ics capability and assists in the preparation of research reports, articles, and presentations.

Facilities. Clinical agencies in urban and rural Utah are settings for advanced practice residencies. Many of these institutions maintain continual clinical research programs and innovative management strategies appropriate for graduate students. Nurse practitioner clinics and rural practitioner sites also offer a challenging experience in becoming an independent practitioner. A graduate study room is available on the fourth floor of the Spencer W. Kimball Tower.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

555. Pharmacology in Advanced Practice. (3)

Principles of pharmacology and drug therapy for advanced-practice nurses.

590R. Independent Study. (1–4)

Prerequisite: instructor's consent.
Individualized study.

600. Nursing Science 1. (2)

Applying and synthesizing knowledge, theory, and research to provide quality health care, initiate change, and improve nursing practice.

601. Nursing Science 2. (2)

Prerequisite: Nurs 600.

Applying and synthesizing knowledge, theory, and research to provide quality health care, initiate change, and improve nursing practice.

605. Health-Care Planning and Policy. (3)

Accountability for planning and influencing policy in the health-care system.

619. Advanced Pathophysiology and Evidence-Based Practice. (2)

Cellular physiology; inflammatory and immune response applied to complex disease states; evidence-based practice.

621. Advanced Health Assessment. (3)

Development of physical assessment techniques.

622. Management of Common Disorders. (6)

Prerequisite: Nurs 551.

Health promotion and prevention of common psychosocial and physiological disorders; diagnosing and managing common alterations across the life span.

627. Management of Family Health. (3)

Theoretical foundations and strategies to manage family health.

629. Advanced Pathophysiology and Diagnostic Reasoning. (2)

Prerequisite: Nurs 619.

Pathology underlying complex disease states; physiologic basis for therapy and management.

630. Management of Chronic Disorders. (6)

Prerequisite: Nurs 622.

Health promotion and prevention of chronic psychosocial and physiological disorders; diagnosing and managing chronic alterations across the life span.

632. Management of Acute Disorders. (5)

Prerequisite: Nurs 630.

Health promotion and prevention of acute psychosocial and physiological disorders; diagnosing and managing acute alterations across the life span.

635R. Family Nurse Practitioner Internship. (1-7)

Prerequisite: Nurs 632.

Internship as a family nurse practitioner.

650. Synthesis Seminar. (2)

Prerequisite: Nurs 604.

Developing professional negotiating and teamwork skills.

651. Introduction to Clinical Nurse Specialist Practice. (5)

Prerequisite: Nurs 600, 601, 605, 619, 621.

Introduction to role of advanced-practice nurse and models of advanced-practice nursing.

653. Symptom Assessment and Management. (5)

Prerequisite: Nurs 651.

Assessing patient problems, implementing nursing interventions, and evaluating outcomes.

655. Program Development and Evaluation. (5)

Prerequisite: Nurs 653.

Skills and tools needed to perform a needs assessment, develop programs, and evaluate their overall effectiveness on local, national, and international levels.

657. Outcomes Management/Clinical Reasoning. (6)

Prerequisite: Nurs 655.

Utilizing clinical reasoning and critical appraisal of the literature to establish outcomes and to evaluate clinical practice, clinical programs, and technology.

659R. Clinical Nurse Specialist Residency. (1-4)

Prerequisite: Nurs 657.

Intensive clinical experience as a clinical nurse specialist.

698R. Project. (1-6)

Prerequisite: committee's consent.

Master's project.

699R. Master's Thesis. (1-6)

Prerequisite: committee's consent.

FACULTY

BALDWIN, JOAN, *Professor*. DNSc, Catholic University of America, 1992. Health Promotion in Nursing.

BECKSTRAND, RENE, *Associate Professor*. PhD, University of Utah, 2001. Comprehensive Care of the Adult Client With Acute Health Problems.

BOND, ELAINE, *Assistant Professor*. PhD, San Diego University, 1997. Acute Care.

CALLISTER, LYNN, *Professor*. PhD, University of Utah, 1993. Cultural Meanings of Childbirth; Women's Health.

COVERSTON, CATHERINE R., *Assistant Professor*. PhD, University of Utah, 2001. Maternal and Child Care.

DEARING, KAREN, *Assistant Teaching Professor*. PhD, University of Utah, 2003. Schizophrenia Recovery; Nurse-Patient Relations.

MANDLECO, BARBARA L., *Associate Professor*. PhD, Brigham Young University, 1991. Growth and Development; Resilience in Children.

MARSHALL, ELAINE SORENSEN, *Professor*. PhD, University of Utah, 1988. Children and Stress; Family Adaptation; Descriptive Methods.

MATSUMURA, GERALDINE, *Associate Professor*. PhD, University of Utah, 1993. Adolescent Substance Abuse; Father-Child Interactions; Online Teaching.

RIDDLE, LANA B., *Associate Professor*. PhD, Texas Woman's University, 1984. Capsular Contracture in Mammoplasty; Clinical Problems.

ROGERS, SANDRA, *Associate Professor*. DNSc, University of California, San Francisco, 1989. Primary Health Care; International Health.

SCHWARTZ, ROSANNE, *Associate Professor*. PhD, University of Florida, 1991. Oxygenation in Neonates.

TIEDEMAN, MARY E., *Associate Professor*. PhD, Wayne State University, 1988. Pediatrics.

WILLIAMS, MARY, *Associate Professor*. PhD, University of Arizona, 1991. Transplant Anxiety; Management; Qualitative Methodology.

NUTRITION, DIETETICS, AND FOOD SCIENCE

Chair: Lynn V. Ogden
Graduate Coordinator: Merrill J. Christensen

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E-mail: merrill_christensen@byu.edu

THE PROGRAM OF STUDIES

Food science is the multidisciplinary study of food, utilizing biology, chemistry, nutrition, engineering, and other sciences. Nutritional science examines the effects of food consumption on the metabolism, health, performance, and disease resistance of the host. Programs in both disciplines offer rigorous classroom instruction combined with challenging, original research. Small faculty-to-student ratios permit intense, meaningful mentoring by faculty advisors.

The Department of Nutrition, Dietetics, and Food Science offers two graduate degrees: Food Science—MS and Nutritional Science—MS. Usual completion time is two years.

General Admission and Entry Requirements

- All applicants must meet the general admission and entry requirements of the BYU Office of Graduate Studies.
- Graduate Record Examination (GRE) and TOEFL scores (for applicants whose native language is not English, or who did not receive their bachelor's degree in an English-speaking country) must be sent to the Office of Graduate Studies prior to the application deadlines.

Application deadlines: February 1 (for admission the following fall semester); June 30 (for admission the following winter semester).

Food Science—MS

The MS program in food science prepares students to work at an advanced level in the food industry or to pursue a doctoral degree through in-depth study of the chemistry of food component functionality, the microbiology of product manufacture and preservation, and the physical principles involved in processes. Students become proficient at designing and conducting research and development projects and communicating the results in a manner consistent with the best professionalism in the discipline.

Admission and Entry.

- General admission and entry requirements described above.
- Undergraduate degree in food science or closely related field.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (NDFS 699R).
- Required courses: NDFS 652, 654, 656, 691R, 699R; Stat 511.
- Minor (optional): selected with approval of faculty advisor.
- Examinations: (1) oral examination on course work; and (2) defense of thesis.
- Thesis: standard university format or journal publication format.

Nutritional Science—MS

The MS program in nutritional science emphasizes applied nutrition (international nutrition, public health nutrition, community nutrition, nutrition education) and experimental nutrition (nutrient metabolism, nutritional biochemistry, nutritional molecular biology). Students are prepared for advanced training in graduate or health professional schools, and for employment in the biotechnology industry, biomedical research, the food industry, public health departments, the fitness industry, government feeding and assistance programs, and international relief agencies. Students are expected to conduct original research with a view to presenting their results at regional, national, and international professional meetings

and publishing their findings in peer-reviewed professional journals.

Admission and Entry.

- General admission and entry requirements described above.
- Undergraduate degree in nutritional science, dietetics, biochemistry, or other closely related field.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (NDFS 699R).
- Required courses: NDFS 601, 602, 691R, 699R; Stat 511.
- Minor (optional): selected with approval of faculty advisor.
- Examinations: (1) oral examination on course work; and (2) defense of thesis.
- Thesis: standard university format or journal publication format.

FINANCIAL ASSISTANCE

Graduate students may be supported as department teaching assistants or research assistants. Second-year graduate students have priority for research assistantships. Students may also be supported by external research funds (grants, contracts) awarded to their advisors. Graduate students are encouraged to apply for scholarships, grants, fellowships, assistantships, and other awards made by the department, college, and university and by external funding agencies.

RESOURCES AND OPPORTUNITIES

Nutritional sciences research laboratories in the Eyring Science Center at BYU total over 4,200 square feet. Facilities for housing and maintaining small animals are included. Studies in cell culture, in animal models, and in humans are conducted using state-of-the-art instrumentation to examine molecular roles of nutrients, study nutritional physiology, and perform nutritional assessment. Conference rooms, reading rooms, project rooms, and computer rooms are used for the conduct of non-laboratory research in eating

behaviors, nutrition education, dietetics management, and dietetics education.

Food science research laboratories total over 10,000 square feet, excluding additional laboratories used for teaching purposes. Facilities include a pilot plant, a sensory laboratory, a laboratory for quality assurance testing and new food product development, and a food microbiology laboratory. Students also conduct research in collaboration with the Ezra Taft Benson Agriculture and Food Institute.

Pilot Plant. Researchers in the Pilot Plant conduct research dealing with food products, using pilot-scale equipment.

Sensory Laboratory. The sensory laboratory is a modern taste panel facility used to train students in sensory testing. Panelists register impressions of samples on computerized questionnaires in an isolated booth equipped with aroma and lighting control. Computerized analysis rapidly transforms data into easily interpreted results.

Quality Assurance Laboratory. The quality assurance laboratory performs quality assurance tests for The Church of Jesus Christ of Latter-day Saints Welfare Services. This research grant provides on-the-job-training, practical experience, and the opportunity to receive compensation for the time spent in learning.

Ezra Taft Benson Agriculture and Food Institute. The major objective of the Benson Institute is to raise the quality of life among the people of the world through improved nutrition and enlightened agricultural practices. Emphasis is on developmental research with cooperating universities in the developing world relative to village nutrition and agricultural production.

Dietetic Internship. The Brigham Young University Dietetic Internship is currently granted accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 South

Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-4876. The ten-month dietetic internship (DI) meets the competency statements established by the American Dietetic Association for entry-level dietitians. Interns may apply to begin the nutrition MS program when they begin the DI, or complete only the internship.

See department Web site for graduate faculty research interests and ongoing research projects.

COURSE DESCRIPTIONS

520R. Supervised Practice Experience. (2–4)

Prerequisite: acceptance into dietetic internship.

Supervised practice experience in clinical, management, and community dietetics settings.

601. Advanced Human Nutrition 1. (3)

Prerequisite: NDFS 435 and instructor's consent.

Nutritional status and scientific basis for dietary recommendations for carbohydrates, lipids, protein, and energy.

602. Advanced Human Nutrition 2. (3)

Prerequisite: NDFS 435 and instructor's consent.

Nutritional status and scientific basis for dietary recommendations for vitamins, minerals, and water.

631R. Selected Topics in Food Science and Nutrition. (0.5–3)

Prerequisite: NDFS 531, 532; or instructor's consent.

Subjects that may be offered include:

- Current Controversies
- Diabetes
- Diet and Cardiovascular Disease
- Eating Disorders
- Food Additives
- Gerontology
- International Nutrition
- Minerals
- Protein
- Sports Nutrition
- Vitamins

632. Diet and Cancer. (2)

Prerequisite: NDFS 601, 602.

Critical scientific evidence for the role of dietary macronutrients, vitamins, minerals, and phytochemicals in the initiation, promotion, and progression of cancer.

633. Maternal/Child Nutrition and Health. (2)

Prerequisite: NDFS 601, 602.

Nutritional requirements and related health issues of pregnant and lactating women and their infants and children.

634. Nutrition Education. (2)

Prerequisite: NDFS 601, 602.

Theories that guide nutrition education; nutrition education programs for various target populations; designing and implementing a nutrition education intervention.

635. Metabolic Aspects of Obesity. (2)

Prerequisite: NDFS 601, 602.

Molecular, biochemical, genetic, and physiologic aspects and determinants of human obesity; role of diet, activity, and behavior modification in prevention and treatment.

637. Advanced Management in Dietetics. (2)

Prerequisite: NDFS 374, 375, 445, 458; or equivalents.

Theory and application of management principles in dietetics.

638. Advanced Clinical Nutrition. (2)

Prerequisite: NDFS 300, 356, 466; or equivalents.

Theory, techniques, and practices in medical nutrition therapy.

652. Carbohydrates and Their Reactions in Foods. (3)

Prerequisite: NDFS 450 or equivalent.

Sugars, higher saccharides, starches, pectins, gums, hemicelluloses, celluloses, and their derivatives and their functions and reactions in foods.

654. Proteins and Their Reactions in Foods. (3)

Prerequisite: NDFS 450 or equivalent.

Plant and animal proteins and their functions and changes during food processing; food enzyme properties.

656. Food Lipids and Their Reactions in Foods. (3)

Prerequisite: NDFS 450 or equivalent.

Lipids and their reactions in foods with other components of the food system and/or the surrounding environment; lipid-processing techniques.

691R. Graduate Seminar. (1-2)

697R. Research. (1-3)

699R. Master's Thesis. (1-9).

FACULTY

BROWN, LORA BETH, *Associate Professor*. EdD, Brigham Young University, 1982. Nutrition Education; International Nutrition.

CAMPBELL, ALISON L., *Assistant Professor*. PhD, University of California, Davis, 2003. International Nutrition; Nutritional Anemia.

CHRISTENSEN, MERRILL J., *Professor*. PhD, Massachusetts Institute of Technology, 1982. Molecular Mechanisms of Cancer Risk Reduction by Diet.

DAVIDSON, ROBERT T., *Assistant Professor*. PhD, University of Wisconsin, Madison, 1998. Fat-Soluble Vitamins; Computer Simulation.

DUNN, MICHAEL L., *Associate Professor*. PhD, Cornell University, 1996. Product Development; Food Preservation and Storage; Food Industry Management.

FRANZ, KAY B., *Associate Professor*. PhD, University of California, Berkeley, 1978. Human Nutrition; Mineral Absorption; Metabolism.

JOHNSTON, N. PAUL, *Professor*. PhD, Oregon State University, 1971. International Nutrition; Small Animal Nutrition.

NYLAND, NORA K., *Associate Professor*. PhD, Kansas State University, 1989. Dietetics Education; Management in Dietetics.

OGDEN, LYNN V., *Associate Professor*. PhD, University of Minnesota, St. Paul, 1973. Food Product and Process Development; Food Preservation and Storage; Sensory Analysis.

PIKE, OSCAR A., *Associate Professor*. PhD, Purdue University, 1986. Food Preservation and Storage; Food Analysis.

ROWE, MARK J., *Professor*. PhD, Brigham Young University, 1972. Molecular Biology; Mitochondrial Genes Affecting Metabolic Rate.

STEELE, FROST M., *Assistant Professor*. PhD, Purdue University, 1990. Food Microbiology; Food Safety; Food Preservation and Storage.

ORGANIZATIONAL LEADERSHIP AND STRATEGY

Chair: Michael Thompson

OB/HR Track Leader: Kate Kirkham

790 TNRB

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(801) 422-2664

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E-mail: mob@byu.edu

Internet:

<http://marriottschool.byu.edu/mob>

THE PROGRAM OF STUDIES

Organizational Behavior— OB/HR MBA Track

The program and curriculum of the two-year master of organizational behavior degree is now offered through the MBA program's organizational behavior/human resource management (OB/HR) track. The former MOB program's desired goals and career focus remain the same. As the MBA OB/HR track, the core curriculum requires additional MBA core courses as a part of the second-year curriculum. The MOB/JD is no longer available. Please contact the MBA Office (640 TNRB) for information about a joint MBA/JD with an OB/HR track emphasis.

COURSE DESCRIPTIONS

Organizational Behavior

For course descriptions see MBA-OB/HR track in the Business Administration section of this catalog.

FACULTY

BAKER, WILLIAM H., *Professor*. EdD, Oklahoma State University, 1974. Communication.

BRYCE, DAVID J., *Assistant Professor*. PhD, University of Pennsylvania, 2002. Economics of Strategy; Corporate Strategy; Industrial Organization.

CHERRINGTON, DAVID J., *Professor.* DBA, Indiana University, Bloomington, 1970. Personnel Management; Organizational Behavior and Ethics.

DERR, C. BROOKLYN, *Professor.* EdD, Harvard University, 1971. Organizational Behavior.

DETIENNE, KRISTEN B., *Professor.* PhD, University of Southern California, 1991. Organizational Behavior; Technology and Communication.

DYER, JEFFREY H., *Professor.* PhD, University of California, Los Angeles, 1993. Global Strategy; Strategic Alliances; Supply Chain Management.

DYER, W. GIBB, JR., *Professor.* PhD, Massachusetts Institute of Technology, 1984. Organizational Culture; Entrepreneurship; Management of Family-Owned Firms.

GARDNER, TIMOTHY M., *Assistant Professor.* PhD, Cornell University, 2002. Strategic Human Resource Management; High-Tech Labor Markets.

GODFREY, PAUL C., *Associate Professor.* PhD, University of Washington, 1994. Strategic Development; Philosophy of Science and Man; Organizational Theory.

GREGENSEN, HAL B., *Professor.* PhD, University of California, Irvine, 1989. Organizational Change; International Management; Cross-Cultural Management.

HANSEN, MARK H., *Assistant Professor.* PhD, Texas A&M, 1996. Strategic Alliances; Trust and Cooperation; Strategy and Entrepreneurship Issues.

HATCH, NILE S., *Assistant Professor.* PhD, University of California, Berkeley, 1995. Technology Strategy; Technology Development and Transfer; Learning by Doing.

JACKSON, W. BURKE, *Associate Professor.* PhD, Stanford University, 1978. Manufacturing Strategy; Production and Operation Management; Business Strategy and Business Policy.

KIRKHAM, KATE L., *Associate Professor.* PhD, Union Graduate School, 1977. Organizational Development; Diversity.

LEBARON, CURTIS D., *Assistant Professor.* PhD, University of Texas, Austin, 1998. Communication.

MEEK, CHRISTOPHER B., *Associate Professor.* PhD, Cornell University, 1983. International Development; Cross-Cultural Analysis in Organizational Behavior; Labor-Management Cooperation.

PERRY, LEE T., *Professor.* PhD, Yale University, 1982. Strategies in Declining Organizations; Behavioral Implications of Mergers and Acquisitions; Radical Product Innovation.

SANDERS, W. GERARD, *Associate Professor.* PhD, University of Texas, Austin, 1996. Corporate Governance; Mergers and Acquisitions; Executive Compensation.

THOMPSON, MICHAEL P., *Associate Professor.* PhD, Rensselaer Polytechnic Institute, 1985. Communication; Organizational Theory.

WHETTEN, DAVID A., *Professor.* PhD, Cornell University, 1974. Organizational Theory; Management Skills; Organizational Identity.

WILKINS, ALAN L., *Professor.* PhD, Stanford University, 1979. Organizational Culture and Control.

WOODWORTH, WARNER P., *Professor.* PhD, University of Michigan, 1974. Industrial Democracy; Worker Ownership; International Development.

PHILOSOPHY

Chair: Dennis F. Rasmussen

3196 JKHB
Provo, UT 84602-6279
(801) 422-2721

THE PROGRAM OF STUDIES

The study of philosophy cultivates critical and analytical thinking and is, therefore, an excellent complement to any graduate program. Specific requirements of the minor can be adapted to the needs and interest of the student.

The Department of Philosophy offers a graduate minor but no graduate major.

Philosophy—Minor

Philosophy students are taught to study significant texts and analyze issues in diverse disciplines. In doing so, they gain basic habits of mind needed for mature and responsible judgment.

Requirements for the Minor.

- Master's level: an approved 9 hours.
- Doctoral level: an approved 15 hours.

Students should direct inquiries about courses and graduate committee members to the department chair.

COURSE DESCRIPTION

501R. Graduate Seminar. (2-5)

Prerequisite: instructor's consent.

Selected topic, figure, or movement in philosophy, as announced in current class schedule.

FACULTY

For faculty listings, refer to the BYU Undergraduate Catalog.

PHYSICAL EDUCATION

Chair: Ruel Barker

Graduate Coordinator: Steven Aldana

276 SFH
Provo, UT 84602-2117
(801) 422-2145

THE PROGRAM OF STUDIES

The mission of the Department of Physical Education encompasses the larger university mission in that we also wish to assist individuals in their quest for perfection and eternal life, emphasizing the truth that "the human body is sacred, the veritable tabernacle of the divine spirit." Our supporting mission is to (1) understand and advance the body of knowledge unique to physical education, (2) prepare physical educators to go forth in society to serve in the broad fields of the discipline in ways that foster dignity and respect for the human body, and (3) provide experiences that will stimulate the acquisition and enjoyment of sport and fitness skills that can be used throughout life to foster health and happiness.

The Department of Physical Education has the following graduate program objectives:

- To provide a scholarly approach to physical education through careful research and rigorous intellectual inquiry.
- To develop and train qualified professionals in physical education.
- To develop scholars in physical education who can extend the body of knowledge.

The following degrees are offered through the Department of Physical Education: Physical Education—MS; and Exercise Science—PhD.

About twenty-five students are admitted into the graduate programs each year, approximately seventeen in the MS program and the remainder pursuing a doctorate degree. Most students complete the MS

degree in two years and the PhD degree in three to four years.

Physical Education—MS

Candidates who have a scholarly interest in the science or pedagogy of physical education are encouraged to pursue this degree.

Areas of specialization: Health Promotion, Exercise Physiology, Athletic Training, Physical Education—Pedagogy.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- GRE general test. (In previous years students accepted to the program have been averaging a combination verbal and quantitative score of 1,000.)
- GPA: minimum 3.0 for last 60 hours of undergraduate work. (Students have averaged a GPA of 3.5 over the last five years.)
- Submit a statement of intent that includes the following information about the applicant: (1) preparation and background for the program, (2) desired emphasis, (3) basic reasons for career choice, (4) special qualities and talents that would enhance success, (5) research interests, (6) professional goals, (7) particular reasons for applying to BYU, (8) specific duration for accomplishing graduate degree, and (9) any specific circumstances or objectives to be considered (optional).
- Prerequisite: see prerequisites with each specialization.

Requirements for Degree.

- Credit hours: minimum 30, with 24–25 being course work hours, plus 6 thesis hours (PE 699R) within the following areas of specialization.
- Areas of specialization: the four areas have the following in common:
—Prerequisite: a baccalaureate degree in physical education or a baccalaureate degree in a related field and completion of PE 361, 362, 363, 367, or equivalents.

—Core courses (12 hours): PE 630, 631, 691, 699R (thesis, 6 hours).

Health Promotion

—Prerequisite: in addition to the above prerequisite and core courses, the following undergraduate courses (or equivalent) must be completed before commencing the MS degree: PE 202, 302, 468.

—Required courses (18–19 hours): PE 599R (3 hours); 661, 666, 667, 669, 671, 673.

Exercise Physiology

—Prerequisite: in addition to the above prerequisite and core courses, the following undergraduate courses (or equivalent) must be completed before commencing the MS degree: college physics; Math 110; college chemistry; Zool 460; PE 202, 302, 400, 468.

—Required courses (10 hours): PE 666, 667, 669; Zool 565.

—Electives: select 8 hours from Chem 481; Zool 562, 589R (CV); PE 659, 662, 663, 671, 673, 693R (1 hour), 766, 769.

Athletic Training

—Prerequisite: in addition to the above prerequisites and core courses, all candidates must complete PE 202 and 302 and be NATA-BOC certified or be eligible to become certified.

—Required courses (17 hours): PE 560; 625R (8 hours); 629R (1 hour); 666; 667; 693R (2 hours).

—Elective (one of the following): PE 662, 663, 668.

Physical Education—Pedagogy (Sport Pedagogy)

—Prerequisite: in addition to the above prerequisite and core courses, candidates must have taken PE 300, 302, or equivalents.

—Required courses (16 hours): PE 582, 649, 650, 651, 658, 691, 693R.

—Electives (one of the following): PE 653, 654, 655, 659.

Exercise Science—PhD

The PhD in exercise science is designed to prepare students for leadership at the highest level of their profession. Since most of the students who receive PhDs will

become university or college faculty and will teach and publish in their chosen area, students must be (1) well trained in the scientific basis of exercise science, (2) well acquainted with the scientific literature, and (3) able to do independent research.

Admission and Entry.

- Application deadlines: see MS.
- Achieve satisfactory score on GRE.
- GPA: minimum 3.5 for last 60 hours.
- Statement of intent: see MS.
- Prerequisite: baccalaureate degree in physical education or related field, with competence equivalent to the following:
—Historical, philosophical, and sociological foundations of physical education (PE 202, 302), measurement and evaluation (PE 360 or Stat 221), motor learning (PE 361), kinesiology and biomechanics (PE 362), physiology of activity (PE 363), problems in conditioning (PE 468), and research methods (PE 630). PE 797R for candidates who have not written a thesis. These candidates must produce a publishable research manuscript before beginning work on a dissertation. (This is prerequisite and will not count toward the 60 hours.)
—Foundational science competencies: anatomy and physiology (Zool 260, 355), college chemistry (Chem 105, 106), college mathematics (Math 110).
- Skill competencies: the equivalent of PE 631 or Stat 510; and Stat 511, 512.
- It is recommended that applicants have at least one degree (BS, MS) from a university other than BYU.

Requirements for Degree.

- Credit hours: minimum 60 hours beyond the bachelor's degree (includes dissertation) in addition to supporting area prerequisites. Students who have earned a master's degree must complete at least 36 hours of additional graduate work.
- All doctoral students must complete an original research study and present it at a regional, national, or international conference or

submit a manuscript to a refereed journal. PhD students will also be required to teach two professional courses.

- Areas of specialization: the three areas have the following in common. The core and specialization must be taken at BYU:
—Research Core: PE 691, 693R, 751, 753, 797R (4 hours), 799R (18 hours).

Exercise Physiology

- Required courses: PE 666, 667, 669, 766, 769, Zool 565.
- Supporting areas: minimum 18 hours of graduate credit, plus prerequisites, must be included in supporting areas approved by your committee. Suggested areas include: biology, zoology, health/wellness, nutrition, biomechanics.

Health Promotion

- Required courses: PE 661, 666, 667, 669, 671, 673.
- Supporting areas: minimum 17 hours of graduate credit, plus prerequisites, must be included in supporting areas approved by your committee. Suggested areas include: health, nutrition, statistics, teacher and program evaluation, biomechanics/advanced exercise physiology.

Physical Medicine and Rehabilitation

- Required courses: PE 560, 625 (12 hours), 668.
- Supporting areas: minimum 16 hours of graduate credit, plus prerequisites, must be included in supporting areas approved by your committee. Suggested areas include: muscle function, pedagogy, biology, zoology, nutrition, health/wellness.
- No more than 9 hours of supporting area course work may be transferred from another university. One member of each student's committee must be from outside the college.
- PhD students must register for at least two consecutive 6-hour semesters on the BYU Provo campus.
- Dissertation.

- Examinations: (A) comprehensive examination; (B) oral defense of dissertation.

FINANCIAL ASSISTANCE

Financial assistance is available in the form of graduate teaching assistantships. The graduate student will teach physical education activity or required laboratory classes.

RESOURCES AND OPPORTUNITIES

The Department of Physical Education utilizes the Human Performance Research Center. The primary purpose of the center is to support applied and basic research programs of faculty and graduate students on such topics as nutrition and exercise, drugs and exercise, exercise and cardiovascular disease, exercise and weight control, and other contemporary issues in exercise science.

Other resources exist in these areas:

Anatomy: five cadavers and skeletons.

Biomechanics: three-dimensional infra-red Motion Analysis video system, force plate analysis.

Exercise Biochemistry: blood and muscle biochemistry, gel electrophoresis, muscle histochemistry, DNA and RNA analysis.

Exercise Physiology: treadmills, bicycle ergometers, body composition analyses (DEXA and Bod Pod), strength testing, electromyography, expired gas analyses.

Athletic Training: one large well-equipped facility plus two satellite training rooms located in the Marriott Center and football stadium.

Motor Learning: devices for measuring learning, speed of movement, and reaction time.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

501. Sports Medicine Pharmacology. (2)

Prerequisite: PE 320, 321; or equivalents; admission to athletic training program.

Pharmacological information for students in a variety of sports medicine/allied health professions. Meets educational JRC-AT competencies.

560. Orthopaedic Pathomechanics. (2)

Prerequisite: PE 460 or equivalent.

Advanced analysis of neuromusculoskeletal deformities, and/or injury. Therapeutic exercise and the use of orthoses.

582. Physical Education for Special Populations. (2)

Prerequisite: baccalaureate degree in physical education.

Theoretical and practical aspects of teaching individuals with disabilities.

586R. Workshop in Fitness and Sport. (1-4)

Prerequisite: undergraduate major in physical education or equivalent.

599R. Academic Internship: Practicum. (1-9)

Field experience for physical education students; fifty hours of volunteer service in approved organization required per credit hour.

625R. Advanced Topics in Physical Medicine and Rehabilitation. (2)

Prerequisite: ATC, PT, or instructor's consent.

Topics will be rotated and may include:

- Electrotherapy, Ultrasound, and Diathermy
- Cryotherapy
- Orthotics
- Clinical and Educational Administration
- Functional Testing and Exercise
- Neural Basis of Rehabilitation
- Strength Rehabilitation
- Joint Mobilization and Manual Therapy
- Spinal Manipulation and Mobilization

629R. Athletic Training Practicum. (1-6)

Prerequisite: PE 415, 416, 417, 418.

Academic and practical application of athletic training skills in the training room setting.

630. Research Methods in Physical Education. (3)

Prerequisite: PE 360 or Stat 221 or equivalent.

Understanding, designing, and conducting research; writing for publication in physical education.

631. Research Design in Physical Education. (2)

Prerequisite: PE 360 or Stat 221 or equivalent.

Designing, conducting, and analyzing data for experimental and survey research studies in physical education using standard statistical procedures.

649. Curriculum Theory and Design in Physical Education. (3)

Theoretical and practical aspects of curriculum design in physical education.

650. Measurement and Evaluation in Physical Education. (2)

Prerequisite: PE 631 or Stat 510.

Instruments and procedures for psychomotor, fitness, cognitive, and affective assessment in physical education.

651. Supervision in Physical Education. (3)

Theory and practice of successful personnel management and supervision in physical education.

652. Administration of Physical Education and Athletic Programs. (3)

Administration and management of physical education, athletics, and related programs and the role of public relations in these programs.

653. Sport and the Law. (2)

Analysis of legal liabilities and issues related to working with programs in physical education and athletics.

654. History of Physical Education. (3)

Review and analysis of historical facts and events in physical education and sports.

655. Philosophy: Ethics and Issues. (2)

Ethical and moral interpretations and concepts underlying the profession.

656. Psychological Implications of Sport. (2)

Prerequisite: graduate standing; Psych 111, PE 450, or equivalent.

Psychological phenomena inherent in sport as they relate to the teacher/coach, participant, and spectator.

657. Sport and Society. (2)

Prerequisite: PE 300 or equivalent.

Relationship of sport to other elements of society, emphasizing the twentieth century.

658. Learning Theory, Sport Pedagogy, and Instructional Design in Physical Education. (3)

Prerequisite: PE 659.

Systematic approach to designing and evaluating cognitive, psychomotor, and affective instruction in physical education.

659. Theory of Motor Learning. (2)

Prerequisite: PE 361.

Theories and methods of learning physical skills.

661. Fitness and Wellness in the Workplace. (3)

Management for effectively designing, marketing, implementing, and administering health promotion programs.

662. Mechanical Analysis of Activities. (2)

Prerequisite: PE 362 or equivalent.

Analysis of human movement and sport activities using kinematic and kinetic descriptions and models of motion based on three-dimensional video and force plate techniques.

663. Research Techniques in Biomechanics of Sport. (2)

Prerequisite: PE 362, 662.

Theory and practice of research techniques in biomechanics: statics, dynamics, body segment parameters, photo instrumentation, electronic instrumentation, digital computer techniques, literature sources, and laboratory fundamentals.

666: Exercise Physiology. (3)

Prerequisite: PE 363.

Adjustments made by the body to accommodate physical activity.

667. Laboratory Methods and Procedures. (2)

Prerequisite: PE 363; 666 or concurrent registration.

Basic techniques and procedures used in human performance laboratories.

668. Pathomechanical Human Anatomy. (3)

Prerequisite: Zool 260, PE 469; or equivalents.

Regional anatomy, emphasizing role of anatomy in etiology, recognition, evaluation, and rehabilitation of athletic injuries and orthopaedic impairments. Students dissect cadavers.

669. Exercise Testing and Prescription. (2)

Exercise testing and interpretation. Exercise prescription for healthy children and adults, athletes, and various clinical and special populations.

671. Health Risk Management. (3)

Prerequisite: PE 661, 666, 667.

Management of health risks, particularly those relating to cardiovascular disease, cancer, and obesity.

673. Obesity and Weight Management. (3)

Etiology, treatment, and prevention of obesity in various populations, emphasizing the role of exercise in weight control programs.

685. Physical Education in the Elementary School. (2)

For teachers, administrators, and supervisors. Curricular interrelationships and content materials directed toward obtaining educational results.

691. Seminar. (1)

Orientation to graduate work in physical education.

693R. Graduate Seminar in Readings. (1)

Prerequisite: PE 666 or concurrent registration for exercise physiology section.

Weekly seminar covering selected topics in physical education. Doctoral students in exercise science should enroll each semester.

699R. Master's Thesis. (1-9)

751. Doctoral Seminar: Professional and Scholarly Writing. (1)

752. Doctoral Seminar: Teaching Physical Education in Higher Education. (1)

753. Doctoral Seminar: Research and Grantsmanship. (1)

754. Doctoral Seminar: Program Management. (1)

755. Research on Teaching and Teacher Evaluation in Physical Education. (2)

Prerequisite: PE 659.

Review of research on teaching and teacher evaluation affecting teaching and administration of physical education.

766. Advanced Exercise Physiology: Cardiopulmonary. (3)

Prerequisite: PE 666, 667.

Cardiovascular and pulmonary physiology, assessments, responses to exercise, and interventions.

769. Advanced Exercise Physiology: Skeletal Muscle. (3)

Prerequisite: PE 666, Chem 481.

Effects of acute and chronic exercise on anatomy, physiology, and biochemistry of skeletal muscle.

797R. Individual Research and Study in Physical Education. (1-9)

Prerequisite: undergraduate major in physical education; matriculation for graduate study in the department.

799R. Doctoral Dissertation. (1-18)

FACULTY

- ALDANA, STEVE**, *Professor*. PhD, Arizona State University, 1991. Exercise Science; Wellness.
- ALLSEN, PHILIP E.**, *Professor*. EdD, University of Utah, 1965. Exercise Physiology; Physical Fitness.
- BARKER, RUEL M.**, *Professor*. EdD, Brigham Young University, 1971. Elementary Physical Education; History of Physical Education.
- CONLEE, ROBERT K.**, *Professor*. PhD, University of Iowa, 1975. Exercise Physiology.
- DRAPER, DAVID O.**, *Professor*. EdD, Northern Illinois University, 1988. Athletic Training.
- DURRANT, EARLENE**, *Professor*. EdD, Brigham Young University, 1975. Athletic Training.
- FELAND, BRENT**, *Assistant Professor*. PhD, Brigham Young University, 1999. Anatomy; Therapeutic Exercise; Rehabilitation.
- GEORGE, JAMES D.**, *Associate Professor*. PhD, Arizona State University, 1995. Exercise and Wellness.
- HAGER, RONALD LEE**, *Assistant Professor*. PhD, Arizona State University, 1997. Motor Control; Children's Physical Activity.
- HOPKINS, J. TYSON**, *Assistant Professor*. PhD, Indiana State University, 2000. Athletic Training.
- HUNTER, IAIN**, *Assistant Professor*. PhD, Oregon State University, 2001. Kinesiology, Biomechanics.
- KAISER, DAVID A.**, *Associate Professor*. EdD, University of Florida, 1994. Athletic Training.
- KNIGHT, KENNETH L.**, *Professor*. PhD, University of Missouri, 1977. Athletic Training.
- LOCKHART, BARBARA D.**, *Professor*. EdD, Brigham Young University, 1971. Administration; Ethics and Philosophy.
- MYRER, WILLIAM**, *Professor*. PhD, Brigham Young University, 1983. Correctives and Rehabilitation.
- PARCELL, ALLEN C.**, *Assistant Professor*. PhD, Ball State University, 1998. Exercise Physiology.

PENNINGTON, TODD R., *Assistant Professor*. PhD, Virginia Polytechnic Institute and State University, 1998. Curriculum and Instruction—Sport Pedagogy.

PRUSAK, KEVEN A., *Assistant Professor*. PhD, Arizona State University, 2000. Pedagogy.

SCHULTHIES, SHANE S., *Associate Professor*. PhD, Brigham Young University, 1991. Correctives and Rehabilitation.

TUCKER, LARRY A., *Professor*. PhD, Southern Illinois University, 1981. Health Promotion; Research Methods.

VEHRS, PAT R., *Associate Professor*. PhD, Brigham Young University, 1991. Exercise Physiology.

VINCENT, SUSAN D., *Assistant Professor*. PhD, Arizona State University, 2001. Elementary Physical Education.

WILKINSON, CAROL, *Associate Professor*. EdD, Brigham Young University, 1983. Pedagogy.

ZANANDREA, MARIA, *Associate Professor*. EdD, Brigham Young University, 1992. Physical Education for Special Populations.

PHYSICS AND ASTRONOMY

Chair: Scott D. Sommerfeldt
Graduate Coordinator: Ross L. Spencer

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Provo, UT 84602-4607
(801) 422-5387
(801) 422-2205

e-mail: gradphyscat@physics.byu.edu

THE PROGRAM OF STUDIES

The Department of Physics and Astronomy is committed to excellence in scholarship. It is actively engaged in scholarly research, contributing to the worldwide development of its scientific disciplines. It integrates those activities into the graduate programs, allowing its graduate students to experience firsthand the excitement of discovering new knowledge.

Three degrees are offered through the Department of Physics and Astronomy: Physics—MS, Physics—PhD, and Physics and Astronomy—PhD.

The average number of MS and PhD students in the department is twenty and ten, respectively. The expected time to complete a degree is two years for the MS and five years for the PhD.

Physics—MS

The master of science degree is sometimes sought by those who intend to continue on for the PhD, but it also serves as a terminal degree for those who intend to work in industrial or governmental research or teaching.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15 (U.S. and international).
- Entrance examination: GRE advanced physics subject test.
- Prerequisite: baccalaureate degree in physics or equivalent. Appropriate course work will be suggested by graduate advisor for

removing deficiencies in undergraduate study.

Requirements for Degree.

- Credit hours (30): minimum 24 approved course work hours (which may include up to 6 hours of Phscs 697R but may not include Phscs 591R or 597R), plus 6 thesis hours (Phscs 699R).
- Required course: Phscs 591R each semester of residence; Phscs 597R first two semesters of residence.
- Prospectus: a proposed subject of research must be defended in public and submitted to the department for approval.
- Thesis.
- Examinations: final oral examination and defense of thesis.

Before admission to candidacy, a student must be accepted as a research student by a member of the faculty of the Department of Physics and Astronomy and submit a proposed study list. The study list is normally completed by the beginning of the second semester of graduate study.

Physics, Physics and Astronomy—PhD

The PhD program prepares students for professional careers in physics and astronomy. These careers include faculty positions at universities and work in research laboratories. Most students who intend to receive the PhD do not enter the MS program.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15 (U.S. and international).
- Entrance examination: GRE advanced physics subject test.
- Prerequisite requirements: applicants should have completed a baccalaureate degree in physics or astronomy or have equivalent preparation.

Requirements for Degree.

- Credit hours (54): minimum 36 hours in approved course work (B– grade or better in each class) exclusive of graduate seminars (see Phscs 591R, 597R); plus disser-

tation (18 hours minimum, Phscs 799R).

- Required core courses: Phscs 591R each semester of residence; Phscs 597R first two semesters of residence.

Physics Degree: Phscs 517, 518, 621, 641, 642, 651, 652.

Physics and Astronomy Degree: five courses from Phscs 517, 518, 621, 641, 642, 651, 652, and two courses from Phscs 611, 612, 627, 628, 629, subject to departmental approval.

- Required graduate level courses: at least 15 hours from 500-, 600-, and 700-level courses, subject to departmental approval. No duplication is permitted between these 15 hours and the student's chosen core courses.
- Skills requirement: select one of the four following options (the selection along with the details are subject to department's approval). No duplication is permitted between the skills requirement and the required courses above:

Option 1: 15 hours of approved course work with a B- grade or better. Refer to department graduate handbook for specific suggestions.

Option 2: demonstrate competence equivalent to 15 hours of course work. The department involved must certify competence.

Option 3: professional internship. Professional certification of competence is needed.

Option 4: combinations of the above.
- Study list: before admission to candidacy a student must be accepted as a research student by a member of the department faculty and submit a proposed study list, which must be approved by the department. The study list should be completed during the first year of graduate study.
- Prospectus: a proposed subject of research must be defended in public and submitted to the department for approval.
- Comprehensive written and oral examinations: taken after completion of required core courses. These examinations are regularly

scheduled each year near the beginning of fall semester.

- Dissertation.
- Examinations: final oral examination and defense of dissertation.

FINANCIAL ASSISTANCE

Qualified graduate students receive financial aid that may take the form of one or more of the following: teaching assistantships, research assistantships, scholarships (including the John Einar Anderson Scholarship and Copley Fellowship), internships, university-sponsored fellowships, or tuition awards. The amount of financial aid given depends on individual merit.

RESOURCES AND OPPORTUNITIES

Within the department there are currently six recognized research specialties: Acoustics; Astronomy; Atomic, Molecular, and Optical Physics; Condensed Matter Physics; Plasma Physics; Theoretical and Mathematical Physics.

Acoustics. The acoustics research program at BYU is strongly cross-disciplinary in character and focuses on the following areas: active noise and vibration control, sound-structure interaction, audio acoustics, and architectural acoustics. The research in acoustics is both experimental and computational in nature and includes simulation and measurement of physical systems, as well as signal processing. Computer facilities are readily available with a number of powerful software packages. In addition, the laboratory is equipped with state-of-the-art acoustic measurement equipment, an anechoic chamber, and two reverberation chambers that can be used for experimental verification studies.

Astronomy. Most research in astrophysics and astronomy is observational. Much of it is conducted with the BYU twenty-four-inch telescope at West Mountain Observatory, twenty miles southwest of campus, which, at 6,800 feet elevation, is a

relatively dark, haze-free site. There is also frequent use of observatories in Arizona, California, and Chile. Topics of current or recent research include the evolutionary status of variable stars, especially classical and dwarf Cepheids; the reliability of secondary photometric standards; population II stars; interstellar reddening; the development status of both old and young galactic star clusters; galaxy nuclei; the galaxian luminosity function; and the photometry of rich galaxy clusters and of galaxies in or near cosmic voids.

Atomic, Molecular, and Optical Physics. This group is involved in cross-disciplinary applied research in X-ray laser development and spectral diagnosis of the gain medium; X-ray optics development using multilayers and structures with nanometer dimensions; the study of extremely high-intensity laser interactions; the use of particle-induced X-ray emission for analysis of trace elements present in material samples; investigations of sonoluminescence where bubbles in liquid metals collapse violently, producing short flashes of visible and UV light; and accurate numerical computation of the interaction of electromagnetic and acoustic waves with resonant-sized objects.

Condensed Matter Physics. Condensed matter physics includes a wide range of topics relating to solids and liquids. Nationally, this is the largest and most active area of physics research. Our interests at BYU center on the electronic, optical, structural, and dynamic properties of solids, using experimental, theoretical, and computational methods. Our current activities include ultrafast laser studies and nonlinear optics in semiconductors; scanning probe microscopy and spectroscopy of nanostructured materials; X-ray and neutron-scattering studies of materials; group theoretical methods applied to phase transitions in crystals; and motion and structure of defects in crystals.

Plasma Physics. Plasma physics research, both experimental and theoretical, centers on the relatively new area of nonneutral plasmas. New experimental techniques are being developed to measure the distribution function of these plasmas in both configuration and velocity space. The response of the plasma to both static and time-dependent perturbations is being studied. The theoretical work being done attempts to extend the mathematical description of these plasmas beyond the simple approximate geometries and fluid models that have been used in the past.

Theoretical and Mathematical Physics. Research in this area studies the foundations, techniques, and some applications of relativity and quantum theory: numerical and analytic approaches to general relativity with particular emphasis on strong gravitational fields; critical phenomena in nonlinear field theories; algebraic methods applied to nonrelativistic and relativistic quantum problems; interaction between radiation and matter in electron theory and quantum electrodynamics; molecular dynamics of defects and impurities in clusters and solids; inverse problems in statistical physics; methods of Bayesian statistics for accurate physical interpretation of quantum measurements; quantum information theory.

For a more detailed description of the graduate program requirements, visit the department Web site at www.physics.byu.edu.

COURSE DESCRIPTIONS

513R. Special Topics in Contemporary Physics. (1–3)
Prerequisite: instructor's consent.

Topics generally related to recent developments in physics.

517, 518. Mathematical Physics. (3 ea.)

Prerequisite: Phscs 318, Math 213 or 334.

Topics in modern theoretical physics, including applications of matrix and tensor analysis and linear differential and integral operators.

529. Observational Astrophysics. (3)
Prerequisite: Phscs 427, 428.

Applied techniques of observational astrophysics, emphasizing practical experience in optical data acquisition and analysis.

545. Introduction to Plasma Physics. (3)

Prerequisite: Phscs 321, 431, 441.

Introduction to plasma physics, including single-particle motion and both fluid and kinetic models of plasma behavior.

561. Fundamentals of Acoustics. (3)

Generation, transmission, and reception of sound. Vibrating systems, properties of elastic media, mechanical and electrical energy, and radiation.

562. Applied Acoustics. (3)

Prerequisite: Phscs 561 or instructor's consent.

Acoustic transducers, spectral analysis, waves in ducts and enclosures, higher-order acoustic sources, fan noise, jet noise, passive noise vibration control, active noise vibration control.

565. Acoustics of Music and Speech. (3)

Prerequisite: Phscs 561 or instructor's consent.

Sound production and perception, techniques for analysis and synthesis, computer modeling, machine recognition, and ensemble effects.

566. Acoustics of Enclosures and Interacting Structures. (3)

Prerequisite: Phscs 561, 562; or instructor's consent.

Acoustic fields in enclosures, reverberation time, low- and high-model density fields, sound-structure interaction, transmission through panels, isolation techniques, and advanced noise vibration control.

570. Atomic Physics. (3)

Prerequisite: Phscs 451 or equivalent.

Classical and quantum descriptions of the interaction of light with atoms. Atomic spectroscopy. Applications to lasers and astrophysics.

571. Laser Physics. (3)

Prerequisite: Phscs 471 or basic understanding of electromagnetic waves and optics.

Laser amplification, cavity design, and control and characterization of temporal and spatial modes. Applications in nonlinear optics and atomic physics.

581. Solid-State Physics. (3)

Prerequisite: Phscs 222 or equivalent.

Introduction to the physics of solids. Topics include crystal structure and symmetry, X-ray diffraction, lattice vibrations, metals and semiconductors, superconductivity, thermal properties, magnetic properties, and dielectric and optical properties.

583. Physics of Nanostructures, Surfaces, and Interfaces. (3)

Prerequisite: Phscs 222 or equivalent. Recommended: Phscs 281 or 581 or equivalent; Phscs 451 or Chem 462 or equivalent.

Properties of nanostructures, surfaces, and interfaces; experimental methods. Applications to emerging problems and opportunities in science and technology. Emphasis on concepts.

585. Thin-Film Physics. (3)

Prerequisite: Phscs 222 or equivalent.

Preparation, characterization, use, and special properties of modern thin films. Interdisciplinary treatment. Of interest to students in applied physics and engineering.

587. Physics of Semiconductor Devices. (3)

Prerequisite: Phscs 281 or 581 or ECEn 450.

Device physics with an in-depth study of the MOS transistor and other nanoscale computing devices.

591R. Colloquium. (0.5)

Required of all graduate students every semester in residence.

597R. Introduction to Research. (0.5)

One or two research areas to be selected. Twenty hours of participation required each semester.

599R. Academic Internship. (2–9)

Prerequisite: department cooperative education coordinator's consent.

Cooperative education internships off campus.

611, 612. Astrophysics. (3 ea.)

Prerequisite: instructor's consent.

Theory of stellar atmospheres and interstellar matter.

617. Advanced Topics in Theoretical Physics. (3)

Applications of tensor analysis, differential geometry, and differential forms to such topics as mechanics, optics, relativity, and fluid dynamics.

618. Advanced Topics in Theoretical Physics. (3)

Introductory group theory. Basic representation theory and developments, with applications to quantum mechanics and molecular and solid-state physics.

619. Advanced Topics in Theoretical Physics. (3)

Prerequisite: Phscs 618.

Advanced group theory. Space groups and lie groups with applications in solid-state physics (energy band representations, phase transitions, etc.), nuclear physics, and quantum field theory (particle classification schemes, etc.).

621. Dynamics. (3)

Prerequisite: Phscs 321.

Advanced treatment of classical mechanics, including Lagrange's and Hamilton's equations, rigid body motion, and canonical transformations.

625. Theory of Relativity. (3)

Prerequisite: Phscs 451 or equivalent; 621.

Review of special relativity and general relativity, with applications to modern astrophysics.

626. Relativistic Astrophysics. (3)

Prerequisite: Phscs 625.

Applications of general relativity to modern astrophysics, including gravitational collapse, black holes, cosmological models, gravitational waves, etc.

627, 628. Advanced Topics in Astrophysics. (3 ea.)

Prerequisite: instructor's consent.

Internal structure of stars; galactic structure.

629. Extragalactic Astronomy and Cosmology. (3)

Prerequisite: Phscs 427, 482; or equivalents.

Extragalactic astronomy, galaxies, and cosmology.

631. Statistical Mechanics. (3)

Prerequisite: Phscs 431, 451; or equivalents.

Advanced thermodynamics, classical statistical mechanics, quantum statistics, and transport theory.

641, 642. Mathematical Theory of Electricity and Magnetism. (3 ea.)

Prerequisite: Phscs 442.

Advanced electrostatics and magnetostatics, Maxwell's equations and electromagnetic waves, relativistic electrodynamics, radiation theory, and interaction of matter with electromagnetic fields.

645, 646. Plasma Physics. (3 ea.)

Prerequisite: Phscs 431 or equivalent; 621, 642.

Plasma state of matter, including a description in terms of both individual particles and fluids, with applications.

651, 652. Quantum Mechanics. (3 ea.)

Prerequisite: Phscs 451 or equivalent; 518.

Nonrelativistic quantum mechanics, with applications.

671. X-Ray Physics. (3)

Prerequisite: Phscs 452 or equivalent; 518, 581.

Physical characteristics of X-ray generation, optics, and experimental applications. Methods of X-ray imaging emphasized.

681, 682. Modern Theory of Solids. (3 ea.)

Prerequisite: Phscs 581, 651.

Quantum theory of solids, emphasizing the unifying principles of symmetry, energy-band theory, dynamics of electrons and of periodic lattices, and cooperative phenomena.

697R. Research. (1–6)

699R. Master's Thesis. (1–9)

711R. Advanced Topics in Physics. (1–3)

Prerequisite: instructor's consent.

Recent and upcoming topics include chaos, thin films, phase transformations, amorphous solids, quantum optics, astronomy using nontraditional frequencies, and particle physics.

751, 752. Advanced Quantum Theory. (3 ea.)

Prerequisite: Phscs 652.

Topics in relativistic quantum mechanics, including quantum field theory.

797R. Research. (1–9)

799R. Doctoral Dissertation. (1–9)

FACULTY

ALLRED, DAVID D., *Professor.* PhD, Princeton University, 1977. Surfaces, Multilayers, and Nanoscale Thin Films; EUV and Soft X-Ray Optics.

BERGESON, SCOTT D., *Assistant Professor.* PhD, University of Wisconsin, 1995. Experimental Atomic Physics.

BERRONDO, MANUEL, *Professor.* PhD, University of Uppsala, Sweden, 1969. Theoretical Physics.

CAMPBELL, BRANTON J., *Assistant Professor.* PhD, University of California, Santa Barbara, 1999. Experimental Condensed Matter Physics.

CHRISTENSEN, CLARK G., *Associate Professor.* PhD, California Institute of Technology, 1972. Astrophysics.

CLARK, ROBERT BECK, *Professor.* PhD, Yale University, 1968. Physics Education; Theoretical Physics.

DAVIS, ROBERT C., *Assistant Professor*. PhD, University of Utah, 1996. Experimental Condensed Matter Physics.

DURFEE, DALLIN S., *Assistant Professor*. PhD, Massachusetts Institute of Technology, 1999. Experimental Atomic Physics.

EVENSON, WILLIAM E., *Professor*. PhD, Iowa State University of Science and Technology, 1968. Theoretical Condensed Matter Physics.

HART, GRANT W., *Associate Professor*. PhD, University of Maryland, 1983. Plasma Physics.

HATCH, DORIAN M., *Professor*. PhD, State University of New York, 1968. Theoretical Condensed Matter Physics; Group Theory.

HESS, BRET C., *Associate Professor*. PhD, Iowa State University, 1988. Condensed Matter Physics.

HINTZ, ERIC G., *Assistant Professor*. PhD, Brigham Young University, 1995. Observational Astrophysics.

HIRSCHMANN, ERIC W., *Assistant Professor*. PhD, University of California, Santa Barbara, 1996. Theoretical and Computational Physics.

JONES, STEVEN E., *Professor*. PhD, Vanderbilt University, 1978. Muon Catalyzed Fusion

LEISHMAN, TIMOTHY W., *Assistant Professor*. PhD, Pennsylvania State University, 2000. Acoustics.

LEWIS, JAMES P., *Assistant Research Professor*. PhD, Arizona State University, 1996. Computational Condensed Matter Physics.

MASON, GRANT W., *Professor*. PhD, University of Utah, 1969. Plasma Physics.

MCMANARA, D. HAROLD, *Professor*. PhD, University of California, Berkeley, 1950. Astrophysics.

MOODY, J. WARD, *Professor*. PhD, University of Michigan, 1986. Astrophysics.

PEATROSS, JUSTIN B., *Associate Professor*. PhD, University of Rochester, 1993. High-Intensity Laser Physics.

PETERSON, BRYAN G., *Associate Research Professor*. PhD, Brigham Young University, 1983. Experimental Plasma Physics.

RASBAND, S. NEIL, *Professor*. PhD, University of Utah, 1969. Theoretical Plasma Physics.

REES, LAWRENCE B., *Professor*. PhD, University of Maryland, 1983. Nuclear Physics.

SOMMERFELDT, SCOTT D., *Professor*. PhD, Pennsylvania State University, 1989. Acoustics.

SPENCER, ROSS L., *Professor*. PhD, University of Wisconsin, 1979. Theoretical Plasma Physics.

STOKES, HAROLD T., *Professor*. PhD, University of Utah, 1977. Condensed Matter Physics.

TAYLOR, BENJAMIN J., *Professor*. PhD, University of California, Berkeley, 1969. Astrophysics.

TURLEY, R. STEVEN, *Professor*. PhD, Massachusetts Institute of Technology, 1984. Computational and Atomic Physics.

VANFLEET, RICHARD R., *Assistant Professor*. PhD, University of Illinois, 1997. Electron Microscopy, Materials Physics.

VAN HUELE, JEAN-FRANÇOIS, *Associate Professor*. PhD, Brussels Free University, Belgium, 1987. Theoretical Physics.

PHYSIOLOGY AND DEVELOPMENTAL BIOLOGY

Chair: James P. Porter
Graduate Coordinator: Dixon J. Woodbury

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THE PROGRAM OF STUDIES

Physiology is the study of the *functions* of the body systems. Developmental biology is the study of how specific genes govern differentiation of cells, tissues, and organs with unique structure and functions. Neuroscience is the study of the development and function of the central nervous system and its connection to influencing/regulating behavior.

Graduate programs within the department offer research training and classroom instruction in a wide range of areas pertaining to these disciplines. A biophysics research group is also part of the department. Areas of research include neuroendocrinology and reproduction, endocrine and immune interactions, development of the central nervous system, hereditary connective tissue disorders, mouse and chick models of development, exercise physiology and glucose metabolism, membrane transport and channel structure, synaptic vesicle recycling, and blood pressure control by the autonomic nervous system.

The Department of Physiology and Developmental Biology offers four graduate degrees: Physiology and Developmental Biology—MS, Neuroscience—MS, Physiology and Developmental Biology—PhD, and Neuroscience—PhD.

The department has approximately twenty graduate students enrolled each year. Students working toward a master's degree generally complete all requirements within two years.

PhD students generally complete all requirements in four to five years.

Admission and Entry.

All graduate programs have the same general admission and entry requirements. However, the neuroscience programs have additional prerequisites as outlined in the sections below:

- Semesters of entry and application deadlines: fall, February 1 (priority deadline), May 1 (final deadline).
- Entrance examination: GRE general test. Foreign students whose native language is not English must submit TOEFL scores.

Applicants are encouraged to communicate with the Department of Physiology and Developmental Biology for further information (Web site: <http://pdbio.byu.edu>).

Physiology and Developmental Biology—MS

This MS degree program provides students with a sound understanding of current concepts in physiology and/or developmental biology. The thesis research project teaches the fundamentals of scientific inquiry and trains the students in state-of-the-art research techniques. Submission of the thesis to a peer-reviewed journal is encouraged but not required.

Admission and Entry

See preceding admission and entry requirements.

Requirements for Degree

- Credit hours (30): minimum 24 approved course work hours plus 6 thesis hours (PDBio 699R).
- Required courses (11 hours): Biol 503 (1 hour); PDBio 582 or 601 (3 hours), 694R (2 hours), 696R (2 hours); Stat 510 or equivalent (3 hours).
- A seminar must be presented each year.
- Thesis: standard university thesis format or journal publication format.
- Examinations: (A) course work oral examination; (B) oral defense of thesis.

Physiology and Developmental Biology—PhD

This PhD degree program is a comprehensive academic endeavor in physiology and developmental biology. Although the research project of each PhD student will focus in an area of either physiology or developmental biology, all students will be expected to have an understanding of key concepts in both disciplines. The research project will include independent inquiry and in-depth application of the scientific method. Eventual publication of the research in peer-reviewed journals is expected but not required.

Admission and Entry

See preceding admission and entry requirements.

Requirements for Degree

- Credit hours: 54 hours, including 18 hours of dissertation (PDBio 799R).
 - Students who have earned a master's degree must complete at least 36 semester hours of additional graduate work at BYU beyond the master's degree.
- Required courses: Biol 503 (1 hour); PDBio 582 and 601 (3 hours each), 694R (2 hours), 696R (2 hours); Stat 510 or equivalent (3 hours).
- Research credit (PDBio 649R and 799R) may not exceed 27 hours.
 - A seminar must be presented each year.
 - A professional development requirement must be met.
 - Dissertation: standard university dissertation format or journal publication format.
 - Examinations: (A) comprehensive written and oral examination; (B) defense of dissertation.

Neuroscience—MS

A sound understanding of current concepts in neuroscience is the purpose of this MS degree program. The thesis research project teaches the fundamentals of scientific inquiry and trains students in state-of-the-art research techniques. Submission of the thesis to a peer-reviewed journal is encouraged but not required.

Admission and Entry

See preceding admission and entry requirements. In addition, applicants should have a strong background in neuroscience. The following courses (or their equivalent) must be completed during undergraduate preparation or as part of the MS program: Neuro 460 (3 hours), 480 (3 hours), 481 (1 hour); PDBio 362 (3 hours), 363 (1 hour); Chem 481 (3 hours).

Requirements for Degree

- Credit hours (30): minimum 24 approved course work hours plus 6 thesis hours (PDBio 699R).
- Required courses: Biol 503 (1 hour); Neuro 601 (3 hours), 645R (2 hours), 655R (2 hours), 665R (2 hours); Stat 510 or equivalent (3 hours).
- A seminar must be presented each year.
- Thesis: standard university thesis format or journal publication format.
- Examinations: (A) course work oral examination; (B) oral defense of thesis.

Neuroscience—PhD

Course work and research that emphasize the integration of molecular biology, developmental biology, biophysics, neuroanatomy, neurophysiology, neuroendocrinology, neuroimmunology, cognition, and behavioral neuroscience is offered through this PhD degree program. Students are required to develop a strong background in the principles of neuroscience and develop the intellectual background and technical expertise necessary for successful research projects in their area of specialization. Eventual publication of the research in peer-reviewed journals is expected but not required.

Admission and Entry

See preceding admission and entry requirements. In addition, applicants should have a strong background in neuroscience. The following courses (or their equivalent) must be completed during undergraduate preparation or as part of the PhD program: Neuro 460 (3 hours), 480 (3 hours),

481 (1 hour); PDBio 362 (3 hours), 363 (1 hour); Chem 481 (3 hours).

Requirements for Degree

- Credit hours: 54 hours, including 18 hours of dissertation (PDBio 799R).
- Students who have earned a master's degree must complete at least 36 semester hours of additional graduate work at BYU beyond the master's degree.
- Required courses: Biol 503 (1 hour); Neuro 601 (3 hours), 645R (2 hours), 655R (2 hours), 665R (2 hours); Stat 510 or equivalent (3 hours). One semester (2 credits) of Neuro 645R must be performed in a laboratory different than the laboratory of the student's graduate committee chair.
- A seminar must be presented each year.
- A professional development requirement must be met.
- Dissertation: standard university dissertation format or journal publication format.
- Examinations: (A) comprehensive written and oral examination; (B) defense of dissertation.

FINANCIAL ASSISTANCE

The Department of Physiology and Developmental Biology offers the following financial aid: teaching assistantships, research assistantships, and tuition awards. Specific endowment fund awards are also available.

RESOURCES AND OPPORTUNITIES

Program resources include the laboratories and equipment of department faculty within the John A. Widtsoe Building and the Eyring Science Center. An electron microscope laboratory, with both transmission and scanning microscopes, is also located on campus. A DNA sequencing center is available in the Widtsoe Building.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

550R. Advanced Topics in Physiology and Developmental Biology. (1–4)

Prerequisite: instructor's consent.

Close interaction between small groups of students and instructor on topics in physiology, developmental biology, or biophysics.

561. Physiology of Drug Mechanisms. (3)

Prerequisite: PDBio 362 or instructor's consent.

Overview of physiological and pharmacological mechanisms and principles of human therapeutics as applied to clinically significant pathophysiology.

562. Reproductive Physiology. (3)

Prerequisite: PDBio 362 or equivalent. Recommended: Chem 481, PDBio 482.

Mammalian reproductive physiology.

565. Endocrinology. (3)

Prerequisite: PDBio 362 or instructor's consent.

Mammalian hormones.

568. Cellular Electrophysiology and Biophysics. (3)

Prerequisite: PDBio 362 or instructor's consent.

Using electrophysiology and biophysics as an approach to the study of physiology. Extensive look at ion channels and cell signaling.

582. Developmental Genetics. (3)

Prerequisite: PDBio 482 or equivalent.

Gene function and regulation during cell specification and differentiation, pattern formation, and organogenesis in the developing embryo.

601. Cellular and Molecular Physiology. (3)

Prerequisite: PDBio 362, 363; or equivalents.

Primary literature used to explore modern concepts of physiology at the cellular and molecular level. Topics include muscle function, transport mechanisms, cell signaling, and ion channels.

649R. Laboratory Research. (1–6)

Prerequisite: instructor's consent.

Laboratory research for graduate students.

650R. Selected Topics in Physiology, Developmental Biology, and Neuroscience. (1–3)

Prerequisite: instructor's consent.

Topics vary.

664. Cardiovascular and Respiratory Physiology. (2)

Prerequisite: PDBio 362 or equivalent.

Advanced course based on current research literature.

694R. Research Presentation. (0.5–1)

Oral presentation of graduate research project (introduction, methods, hypothesis, results, conclusions).

695R. Practicum in Biology Teaching. (0.5–3)

Curricula, principles, concepts, and experiences in teaching biology effectively.

696R. Graduate Seminar. (1)

Topics vary. See current class schedule.

699R. Master's Thesis. (1–6.)

799R. Doctoral Dissertation. (1–18)

FACULTY

BARROW, JEFFERY R., *Assistant Professor.* PhD, University of Utah, 1999. Molecular Mechanisms of Development of Limbs and Craniofacial Structures; Tumorigenesis.

BELL, JOHN D., *Professor.* PhD, University of California, San Diego, 1987. Pharmacology; Membrane Physiology.

BROWN, MICHAEL D., *Assistant Teaching Professor*. PhD, Colorado State University, 1999. Regulation of Axon and Dendrite Extension and Pathfinding During Nervous System Development.

BUSATH, DAVID D., *Professor*. MD, University of Utah, 1978. Electrophysiology; Molecular Modeling; Molecular Biophysics.

JUDD, ALLAN M., *Associate Professor*. PhD, West Virginia University, 1981. Physiology; Neuroendocrinology.

KOORYMAN, DAVID L., *Associate Professor*. PhD, Ohio University, 1993. Mechanisms of Gene Expression.

LEPHART, EDWIN D., *Professor*. PhD, University of Texas Southwest Medical Center, 1989. Neuroendocrinology.

PORTER, JAMES P., *Professor*. PhD, University of California, San Francisco, 1982. Neuroendocrinology; Hypertension.

RHEES, REUBEN WARD, *Professor*. PhD, Colorado State University, 1971. Neuroendocrinology; Physiology.

SEEGMILLER, ROBERT E., *Professor*. PhD, McGill University, Canada, 1970. Developmental Biology; Teratology.

SILCOX, ROY W., *Associate Professor*. PhD, North Carolina State University, 1986. Reproductive Physiology; Management; Superovulation; Embryonic Development.

STARK, MICHAEL R., *Assistant Professor*. PhD, University of California, Irvine, 1998. Developmental Biology.

SUDWEEKS, STERLING N., *Assistant Professor*. PhD, University of Utah, 1997. Pharmacology of the Nervous System; Ion Channels.

WINDER, WILLIAM W., *Professor*. PhD, Brigham Young University, 1971. Exercise Physiology and Endocrinology.

WOODBURY, DIXON, *Professor*. PhD, University of California, Irvine, 1986. Molecular Mechanisms of Exocytosis; Neuroscience of Transmitter Release; Electrophysiology of Ion Channels.

WOOLLEY, BRUCE H., *Professor*. PharmD, University of Southern California. Pharmacology.

PLANT AND ANIMAL SCIENCES

Chair: Sheldon D. Nelson

Graduate Coordinator: Richard E. Terry

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THE PROGRAM OF STUDIES

Graduate programs in the Department of Plant and Animal Sciences provide research and education in plant sciences, biotechnology, genetics, environmental science, and soil science. Those admitted to this program will have completed BS degrees with strong backgrounds in the basic mathematical, physical, and biological sciences before selecting graduate course work in biology, soil science, and basic sciences. Students completing program requirements will be prepared to accept employment in agriculture, biotechnology, and consulting, although most choose to continue graduate studies for the PhD.

Two degrees are offered through the Department of Plant and Animal Sciences: Agronomy—MS and Genetics and Biotechnology—MS.

These graduate programs are supported by twenty faculty members within the department. Their research and teaching interests include genetics and biotechnology, plant growth under environmental stress, urban landscape environments, bioremediation of contaminated soils and water, and both modern and ancient agricultural environments. All MS degrees are earned in thesis-only programs. Students are expected to present their theses in the form of one or more manuscripts ready for submission to refereed journals.

Agronomy—MS

Pursuit of the MS degree in agronomy provides students with research and education opportunities in environmental protection and remediation and in plant growth and physiology. Students will select graduate course work in soil science, biology, and environmentally related courses taught in departments across the campus. Those completing program requirements will be well prepared for employment in environmental and agricultural consulting, teaching at the junior college level, and continued graduate studies for the PhD. Their research and teaching interests include: plant growth under environmental stress, invasive species, plant physiology, urban landscape environments, bioremediation of contaminated soils and water, and both modern and ancient agricultural environments.

Admission and Entry

- Semesters or terms of entry and application deadlines: fall, winter, and spring; February 1 (U.S. and international).
- Entrance examination: GRE general test.
- Prerequisite: baccalaureate degree in plant science, environmental science, horticulture, or related field.

Requirements for Degree

- Credit hours: (30): minimum 24 course work hours plus 6 thesis hours (PAS 699R).
- Thesis: completion of the thesis in scientific journal format.
- Required courses: Two semesters of PAS 691R (seminar) and one semester of graduate statistics (Stat 511).
- Undergraduate hours: no more than 9 semester hours may be applied toward master's degree.
- Examinations: final oral examination and defense of thesis.
- Minor: not required; students who do desire a minor may choose from botany, chemistry, computer science, food science, geology, geography, mathematics, microbiology, physics, statistics, range science, or zoology.

Genetics and Biotechnology—MS

Genetics is the study of inheritance. Biotechnology is the application of modern DNA marker, isolation, and transfer technologies toward improving plant and animal agricultural productivity, environmental remediation, and the treatment of disease. These branches of biology have risen to prominence during the course of the past fifteen years and are widely recognized for their potential impact upon society in the twenty-first century. Employment opportunities in industry and academia are especially plentiful for graduates with advanced degrees in genetics and biotechnology.

Admission and Entry

- Semesters or terms of entry and application deadlines: fall, winter, and spring; February 1 (U.S. and international).
- Entrance examination: GRE general test.
- Prerequisite: baccalaureate degree in plant science, environmental science, horticulture, or related field.

Requirements for Degree

- Credit hours: (30): minimum 24 course work hours plus 6 thesis hours (PAS 699R).
- Thesis: completion of the thesis in scientific journal format.
- Required courses: PAS 673R and 670, plus two semesters of 691R.
- Undergraduate hours: no more than 9 semester hours may be applied toward master's degree.
- Examinations: final oral examination and defense of thesis.
- Minor: not required; students who do desire a minor may choose from botany, chemistry, computer science, food science, geology, geography, mathematics, microbiology, physics, statistics, range science, or zoology.

FINANCIAL ASSISTANCE

Teaching and research assistantships are offered on a competitive basis by the department.

RESOURCES AND OPPORTUNITIES

Agriculture Station. The 837-acre station in Spanish Fork, Utah, encompasses several sites, all of which support research in basic and applied agriculture. At these facilities research can be conducted on soils and on field, forage, and horticultural crops.

Ezra Taft Benson Agriculture and Food Institute. The major objective of the institute is to raise the quality of life among the people of the world through improved nutrition and enlightened agricultural practices. Emphasis is placed on teaching and training students who wish to work in foreign countries and on training people from those countries in agriculture and food science practices that can be used to improve life. Research to improve agricultural practices, family nutrition, and appropriate technology is encouraged.

M. L. Bean Life Science Museum. Exhibits and collections of biological specimens are housed in the M. L. Bean Life Science Museum. The exhibits include habitat studies of local as well as exotic plant and animal species and a large and valuable collection of trophies from North America, Africa, and Asia.

USDA Forest Service Shrub Science Laboratory. Housed on the BYU campus, this laboratory supports one of the finest research programs on native shrubs in the world. Here eleven PhD research scientists with adjunct faculty appointments work with BYU faculty members and graduate students. Laboratories, greenhouses, and gardens on campus and around the state support studies on desert shrubs.

Other Laboratory and Field Resources. On the Provo campus are an arboretum, a small animal vivarium, a tissue culture room, and several environmental chambers. Laboratory facilities include gas chromatographs—mass spectrometers, isotope ratio mass spectrometers,

ters, transmission and scanning electron microscopes, ultra centrifuges, visible ultraviolet and infrared spectrophotometers, gas chromatographs, high-performance liquid chromatographs, infrared gas analyzers, atomic absorption spectrophotometer, inductively coupled plasma spectrophotometer, ion chromatograph, near infrared spectrophotometer, and many other items. Besides excellent greenhouse facilities and environmental chambers, the department has an experimental research area at the BYU Agriculture Station and a horticulture study area where all-American vegetable and flower selections are grown.

Faculty and graduate students are currently engaged in a number of significant and interesting research projects, funded both internally and externally. Some of these are: mineral uptake by plants; ecology and seed physiology; photosynthetic rate and water-use efficiency in plants; plant breeding and molecular genetics; forage research; and environmental science.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

511. Soil Physics. (3)

Prerequisite: PAS 282, Chem 105; Math 112 or 119; or equivalents. Recommended: Phscs 105 or 121; or equivalent.

Physical relationships of water, heat, and gases in soils; physical and chemical properties of clays. Mathematical modeling of physical properties and transport processes.

514. Soil Microbiology. (2)

Prerequisite: Chem 106, 107; or equivalents.

Ecology and role of soil microorganisms in nutrient cycling, decomposition of organic matter and waste materials, and degradation of agricultural chemicals in soil.

520. Saline and Sodic Soils. (3)

Prerequisite: PAS 305, Chem 105, 106, 107; or equivalents.

Physical and chemical properties of saline and sodic soils and irrigation waters—their diagnosis, reclamation, and management for sustainable crop production.

525. Plant Development. (3)

Prerequisite: Biol 360 or equivalent; PAS 486 or equivalent.

Molecular and genetic interactions in plant development.

540R. Topics in Plant Physiology. (3)

Prerequisite: PAS 440 or equivalent; concurrent or prior enrollment in PAS 494R.

Topics in advanced plant physiology.

—Advanced Topics in Crop Physiology.

—Developmental Plant Physiology

—Advanced Topics in Plant Metabolism

559. Plant Molecular Breeding. (2)

Prerequisite: PAS 265, 485, Biol 340; or equivalents; concurrent or prior enrollment in PAS 494R.

Molecular genetic methods applied to improvement of economically important plants.

560. Soil and Plant Analysis. (3)

Prerequisite: PAS 282 or equivalent.

Laboratory chemical analysis of soils and plant materials in soil and plant research.

570. Analysis of Complex Genomes. (3)

Prerequisite: Biol 340 or equivalent.

Quantitative genetic analysis of traits in plants and animals.

580. Plant Transformation. (2)

Prerequisite: Biol 360, PAS 486; or equivalents.

Theory and methods of plant transformation.

598R. Advanced Topics in Plant and Animal Sciences. (1–3)

605. Soil-Plant Relationships. (3)

Prerequisite: PAS 282, 305, 306, 440; organic or biochemistry course.

Soil-plant nutrition including mechanisms of nutrient uptake, transfer, and assimilation; mechanisms of nutrient immobilization and toxicity in soils and plants.

633. Experimental Design. (3)

Prerequisite: Stat 221 or 510 or equivalent.

Planning, experimental design, analytical procedures, and data interpretation in biological research; incorporates use of Statistical Analysis System (SAS) software.

640. Developmental Plant Physiology. (3)

Prerequisite: PAS 440 or equivalent.

Developmental phenomena in higher plants, emphasizing seed physiology, plant growth regulation, and plant stress responses.

670. Analysis of Complex Genomes. (3)

Prerequisite: Biol 340 or equivalent.

Genetic analysis of quantitative traits in plants and animals.

673R. Cytogenetics. (3)

Prerequisite: PAS 484 or 485, Biol 340; or equivalents.

Chromosome structure and function; classical and molecular cytological methods of chromosome and genome analysis.

694R. Seminar. (1)

697R. Research. (1–9)

698R. Master's Project. (1–6)

For project option only.

699R. Master's Thesis. (1–9)

FACULTY

ALLEN, PHIL S., *Professor*. PhD, University of Minnesota, 1990. Seed Biology; Ornamental Horticulture.

CAMPBELL, EMILIE M. G., *Assistant Professor*. PhD, Texas A&M University, 1998. Animal Genetics.

COLEMAN, CRAIG E., *Assistant Professor*. PhD, Pennsylvania State University, 1992. Plant, Molecular, Cellular, and Developmental Biology.

CROOKSTON, R. KENT, *Professor*. PhD, University of Minnesota, 1972. Crop Physiology, Precision Agriculture, Corn and Soybean Management.

FAIRBANKS, DANIEL J., *Professor*. PhD, University of Arizona, 1988. Genetics; Plant Breeding; Biotechnology.

HORROCKS, R. DWAIN, *Professor*. PhD, Pennsylvania State University, 1967. Crop Physiology; Forage Production and Utilization.

JELLEN, ERIC N., *Associate Professor*. PhD, University of Minnesota, 1992. Classical and Molecular Cytogenetics; Genetic Mapping; Plant Breeding.

JOLLEY, GREGORY V., *Assistant Teaching Professor*. MLA, Kansas State University, 1999. Landscape Architecture.

JOLLEY, VON D., *Professor*. PhD, Iowa State University of Science and Technology, 1976. Mineral Nutrition in Plants; Chemistry of Iron Uptake in Plants.

KELLEMS, RICHARD O., *Professor*. PhD, Oregon State University, 1976. Ruminant Nutrition; Alternative Feedstuff Development and Evaluation; Nutrient Utilization.

MAUGHAN, P. JEFFREY, *Assistant Professor*. PhD, Virginia Polytechnic Institute and State University, 1996. Plant Genetics.

NELSON, SHELDON D., *Professor*. PhD, University of California, 1971. Soil Physics; Irrigation Management; Environmental Water Quality.

SMITH, BRUCE N., *Professor*. PhD, University of Washington, 1964. Plant Physiology; Growth and Respiration.

STEVENS, MIKEL R., *Associate Professor*. PhD, University of Arkansas, 1993. Plant Breeding; Molecular Genetics.

TERRY, RICHARD E., *Professor*. PhD, Purdue University, 1976. Soil Microbiology; Reclamation and Restoration of Environmentally Disturbed Sites.

WILLIAMS, C. FRANK, *Professor*. PhD, Oregon State University, 1971. Plant Propagation; Turf Management; Organic Materials Recycling; Water Quality.

PSYCHOLOGY

Chair: M. Gawain Wells

Associate Chair/Graduate

Coordinator: Robert Ridge

Associate Chair/Director of Clinical

Training: Bruce Carpenter

Executive Coordinator of Clinical

Psychology: Elizabeth J. Norton

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(801) 422-4287

THE PROGRAM OF STUDIES

The mission of the Psychology Department is to discover, disseminate, and apply principles of psychology within a scholarly framework that is compatible with the values and purposes of Brigham Young University and its sponsor.

Three degrees are offered through the Department of Psychology: Psychology—MS, Psychology—PhD, and Clinical Psychology—PhD.

Students are selected after careful consideration of GPA, GRE scores, letters of recommendation, and areas of academic interest. The MS program is designed to be completed in two years. The PhD program is designed to be completed in four years and the clinical PhD program in five years (including an internship).

Psychology—MS

The master's degree in psychology provides advanced education in preparation for application to doctoral programs; community college, junior college, or high school teaching; and general strengthening of expertise in psychology. It is not intended as a terminal professional degree.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 1 (U.S. and international).
- Application requirements: minimum required GPA is 3.0 for the last 60 hours.

- Entrance examination: GRE general test.
- Prerequisite: bachelor's degree required (BS in psychology preferred but not required). Previous course work should include general psychology, elementary psychological statistics, research design and analysis, and three additional psychology courses.

Requirements for Degree.

- Credit hours (30): minimum 24 course work hours plus 6 thesis hours (699R).
- Required courses: Psych 501, 502, 504, 605, 606 (first three semesters in residence), two electives, and three of the following: Psych 510, 520, 540, 550, 560, 565, 575, 583.
- Advisory committee selection: by the end of the first semester students must select their thesis committee and submit their study list.
- Electives: determined in consultation with the advisory committee.
- Thesis.
- Examination: final oral examination on course work and defense of thesis.

Psychology—PhD

The doctoral program in psychology offers rigorous educational experience leading to the PhD degree. The first three semesters of the program are designed to provide broad coverage of the substantive areas of the field, training in research skills, and introduction to the particular areas of emphasis offered in the program. During the last two years of the program students will pursue specialized course work and training in one of three emphasis areas: (1) Applied Social Psychology, (2) Behavioral Neurobiology, (3) Theoretical/Philosophical Psychology. The course work for these emphasis areas will be outlined under the supervision of the student's dissertation committee.

During the first semester students should select a faculty advisor and a dissertation committee. By the end of the second year in the program, all students will complete an MS degree, including a thesis. Following

the completion of these requirements, students will concentrate on course work and research in the emphasis area they wish to pursue under the direction of the dissertation committee.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 1 (U.S. and international).
- Application requirements: minimum required GPA is 3.0 for most recent 60 hours.
- Entrance examination: GRE general test.
- Prerequisite: bachelor's degree required (BS in psychology preferred but not required). MS degree is required as part of the PhD program. Previous course work should include general psychology, psychological statistics, research design and analysis, and three additional psychology courses.

Requirements for Degree.

- Credit hours (63): minimum 45 course work hours plus 18 dissertation hours (799R).
- Required core courses: B grade or better in Psych 501, 502, 504, 510, 540, 550, 560, 575, 583, 605, 606.
- Recommended sequence of program requirements:
First Year: fall, Psych 501, 550, 560, 605; winter, Psych 502, 540, 583, 606; spring, Psych 510 (may be taken any spring term during the four years).
Second Year: fall, Psych 504, 575. By the end of the second year students should have completed and defended a master's thesis.
Third Year: students specialize in emphasis area(s), take course work selected in consultation with their graduate committee, and complete the specialty literature review project.
Fourth Year: this year is devoted to finishing course work and training in an emphasis area and to completing the dissertation. Students must complete 18 hours of dissertation credit (Psych 799R) as part of the dissertation requirement.
- Examinations: by the end of their third year in the program

(August), all students will complete and obtain approval of a major literature review in the emphasis area of their choice. This project should constitute a contribution to the field and demonstrate mastery of a body of research literature.

- Dissertation: by the end of their fourth year in the program, students should complete and defend a dissertation in their chosen emphasis area (including a journal article in a form acceptable for submission appended to the dissertation, unless exempted in individual cases by the dissertation committee and the program chair).

Clinical Psychology—PhD

The clinical psychology training program at Brigham Young University is accredited by the American Psychological Association and leads to the PhD degree. This program is ordinarily completed in five years, including a one-year, full-time internship at an accredited agency. Candidates with varied backgrounds who have strong academic and clinical promise are recruited.

The philosophy of the clinical training program adheres to the scientist-professional model. Training focuses on academic and research competence as well as theory and practicum experiences necessary to develop strong clinical skills.

The program at Brigham Young University is eclectic in its theoretical approach, drawing from a wide range of theories and orientations in an attempt to give broad exposure to a diversity of traditional and innovative approaches. All students receive a basic core of training in adult clinical psychology. They may also elect to take a special emphasis in (1) Child, Adolescent, and Family, (2) Clinical Neuropsychology, (3) Clinical Research, or (4) Values, Religion, and Mental Health.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 1 (U.S. and international).

- Application requirements: minimum required GPA is 3.0 for most recent 60 hours.
- Entrance examination: GRE general test.
- Prerequisite: bachelor's degree required (BS in psychology preferred but not required). MS degree is not necessary as part of the clinical PhD program. Previous course work should include introductory and abnormal psychology; psychological statistics; research design and analysis; personality; learning or cognition; and tests and measurement.

Requirements for Degree.

- Credit hours (118 minimum; B grade or better).
- Research requirements: 8 hours of graduate data analysis (Psych 501, 502); 9 hours of research methodology (Psych 503, 504, 505); 18 hours of dissertation (Psych 799R).
- General core courses: 6 hours of biological bases of behavior (Psych 583 or 585; 687R); 6 hours of social-cultural bases of behavior (Psych 555, 645); 3 hours of cognitive-affective bases of behavior (Psych 560 or 575); 3 hours of human development (Psych 520); 3 hours of history and systems (Psych 510); 3 hours of ethics and standards (Psych 609).
- Clinical core courses: 3 hours of ethics and standards (Psych 609); 9 hours of assessment (Psych 622, 623, 624); 12 hours of psychotherapy (Psych 651, 652, 653, 654. **Note:** 654 is strongly recommended but not required for neuropsychology students); 7 hours of psychopathology and personality (Psych 540, 611); 18 hours of dissertation (Psych 799R).
- Clinical practica: 18 hours of clinical practica (Psych 741R); 4 hours of clerkships (Psych 743R); 3 hours of case conferences (Psych 740R); 6 hours of externships optional but strongly recommended (Psych 700R); 6 hours of internship (Psych 745, 746, 747, or 748).
- Emphasis sequences: a sequence of elective courses may be taken in the following emphasis areas: Child, Adolescent, and Family;

Clinical Neuropsychology; Clinical Research; Values, Religion, and Mental Health.

- Dissertation (including a journal article in a form acceptable for submission appended to the dissertation) to be completed before the internship.
- Internship: one-year internship in a setting approved by the clinical director. Before entering the internship, students complete all other requirements.
- Examinations: (A) comprehensive examinations in first, second, and third years; (B) oral defense of prospectus and dissertation.

For additional information about the program, write or call the secretary or the director of clinical training, 284 TLRB, Provo, UT 84602-8610, telephone (801) 422-4050.

FINANCIAL ASSISTANCE

Departmental financial aid is manifested in various forms: teaching and research assistantships, student instructorships, and tuition support.

RESOURCES AND OPPORTUNITIES

Comprehensive Clinic. This clinic is a unique interdisciplinary training and research facility housing audio-visual and computer resources and a staff of skilled technicians and secretaries to support graduate student and faculty research. The clinic currently functions as an APA-approved clinical psychology laboratory for the Psychology Department. In addition, the clinic provides the university and the broader geographical community with mental health services, serving between 200 and 250 clients each week. The clinic contains eleven counseling rooms, four seminar rooms, and two large classrooms equipped with video cameras and portable playback units. Fourteen small session rooms are equipped for audio recording.

Externship Opportunities. In addition to practicum experiences in the Comprehensive Clinic, the clinical

program arranges a number of reimbursed training placements in community agencies as well as four required unpaid clerkship experiences, including Utah State Hospital, Utah State Prison, a facility for children with developmental disabilities, and a self-selected site. These clerkships and externships are arranged and managed by the executive coordinator of clinical psychology and the director of clinical training and are supervised by on-site licensed professionals, who typically hold adjunct appointments in the Psychology Department. At present, clerkships and externships are available in more than twenty-five different settings. These opportunities provide an excellent foundation for the integration of classroom experiences with practical work applications.

Family, Home, and Social Sciences Computing Center.

The center assists faculty and students with data processing and other computing needs on mainframe and personal computers. Technical support and consultation services for both statistics and graphics are available to students working on research projects, theses, and dissertations. Special computer facilities in the Psychology Department support research in psycholinguistics, neuroimaging, neurophysiology, social psychology, and the experimental analysis of human and animal behavior.

Psychobiology Research

Laboratories. These laboratories are equipped with facilities for brain-behavior analysis. Full histology and electrophysiology laboratories, along with the necessary surgical facilities, are available.

Neuroimaging and Behavior

Laboratory. Research and training in the area of neuroimaging and cognitive neuroscience are supported by a laboratory consisting of multiple computers, video, data storage, and printer workstations. These are supported by current software that allows for the capture, processing, isolation, and imaging output of specific areas of the brain from MRI and

CT images as well as from metabolic imaging studies.

Multivariate Data Visualization

Laboratory. Faculty and students interested in multivariate visualization of data and large-scale data analysis are supported by a mathematical psychology laboratory consisting of a network of NT workstations and laboratories for human and animal behavior analysis. Three laboratories feature online control of experimental procedures and data recording.

The college also provides additional research and academic support through the Camilla Eyring Kimball Chair of Home and Family Life; the Lemuel H. Redd, Jr., Chair in Western History; the J. Fish and Lillian F. Smith Chair of Economics; and the Family History Services unit.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

501. Data Analysis in Psychological Research 1. (4)

Prerequisite: Psych 301 or Stat 222; or Stat 221, 223.

Using and interpreting major quantitative methods in psychology; some commonly used computer methods.

502. Data Analysis in Psychological Research 2. (4)

Prerequisite: Psych 501 or instructor's consent.

Analysis of variance and experimental design; multiple regression; introduction to multivariate methods.

503. Research Measurement. (3)

Classical true score and item response theories; estimation procedures for instrument reliability and validity.

504. Research Design. (3)

Overview of designs used in psychotherapeutic literature, emphasizing critical analysis of empirical research.

505. Clinical Research. (3)

Prerequisite: Psych 503, 504.

Overview of research examining processes and outcomes of psychological treatments for psychological disorders.

510. History and Systems of Psychology. (3)

Survey of origins and development of modern psychology, including consideration of schools and theoretical systems.

511. Philosophy of Science for the Social Sciences. (3)

Prerequisite: instructor's consent or admission to PhD program.

Issues in philosophy of science as they apply to social sciences, including considerations of method, epistemology, and construction of knowledge.

512. Qualitative Research Methods. (3)

Theories and methods of qualitative research emphasizing philosophical assumptions, question formulation, data gathering, interpretation, and presentation of findings.

520. Advanced Developmental Psychology. (3)

Major research in developmental psychology, emphasizing theory, content, and methodology.

531. Organizational Psychology. (3)

Personal and interpersonal aspects of organizational life: goal setting, decision making, problem solving, communication, control, leadership, motivation, and change.

535. Behavior Modification Techniques. (3)

Practical application of behavior modification to academic discipline; emotional target behaviors of individuals and groups.

540. Personality Theory. (3)

Prerequisite: Psych 341 and 5 additional hours in psychology.

Contemporary theories of personality developed within framework of major psychological systems.

550. Theory and Research in Social Psychology. (3)

Prerequisite: graduate standing or instructor's consent.

Current theories and research on how the thought, feelings, and behavior of individuals are influenced by the real or imagined presence of others.

552. Applied Social Psychology. (3)

Prerequisite: Psych-Soc 350; graduate standing or instructor's consent.

Overview of domains in which social psychological theory and research have been applied in field settings.

555. (Psych-Soc) Group Dynamics. (3)

Prerequisite: Psych-Soc 350.

Theories and research on small-group processes and mass behavior.

560. Learning Theory. (3)

Prerequisite: Psych 361 and 5 additional hours in psychology.

Critical review of current theories and persistent issues.

565. Motivational Psychology. (3)

Prerequisite: Psych 365 or equivalent; graduate standing or instructor's consent.

Theoretical, historical, and empirical overview; recent trends and issues; role of animal studies; methodological issues.

575. Cognitive Processes. (3)

Prerequisite: Psych 370, 375, or equivalent; graduate standing or instructor's consent.

Theory and research in perception, attention, language, problem solving, and other thinking processes.

583. Biological and Health Psychology. (3)

Prerequisite: Psych 381, 382, or equivalent.

In-depth examination of biological bases of behavior from perspective of health and disease.

584. Cognitive Neuroscience. (3)

Prerequisite: graduate standing or instructor's consent.

Critical analysis of the neurobiological bases of perception and cognition.

585. Human Neuropsychology. (3)

Prerequisite: Psych 381, 382; or instructor's consent.

Critical study of brain-behavior relationships.

586. Hormones and Behavior. (3)

Prerequisite: Psych 381, 382.

Neural and endocrine mechanisms underlying behavior.

587. Sensory and Perceptual Processes. (3)

Prerequisite: Psych 370, 381, 382; or instructor's consent.

Critical examination of sensory mechanisms and perceptual organization.

592R. Supervised Teaching Experience. (1-3)

For students receiving supervised teaching experience.

600R. Seminar in Research Methods. (3)

Prerequisite: Psych 501.

Research strategies, methods, and design including measurement, scaling, questionnaire construction, reliability, validity, and experimental and statistical designs.

605. Professional Seminar in Psychology. (1)

Prerequisite: acceptance into MS program.

Introduction to major research areas in psychology.

606. Professional and Ethical Issues in Psychology. (1)

Prerequisite: acceptance into PhD program.

Ethical issues in professional and scientific psychology.

609. Professional and Ethical Issues in Clinical Psychology. (3)

Prerequisite: acceptance into clinical psychology program.

Ethical issues from a historical and contemporary framework.

610. Theory and Philosophy in Psychology. (3)

Prerequisite: instructor's consent or admission to PhD program.

Philosophical issues underlying psychology, including the nature and importance of theory and theorizing.

611. Psychopathology. (4)

Prerequisite: acceptance into clinical psychology program.

Diagnosis and etiology of mental and emotional disorders in children and adults.

612. Psychopathology 2: Developmental. (3)

Prerequisite: acceptance into clinical psychology program.

Diagnosis and incidence of maladjustment, learning disabilities, abnormalities and subnormalities, and cultural deficits.

622. Assessment 1: Intelligence. (3)

Prerequisite: acceptance into clinical psychology program.

Methods used in assessing intellectual status in children and adults.

623. Assessment 2: Personality. (3)

Prerequisite: acceptance into clinical psychology program.

Methods used in assessing the personality and behavioral characteristics of children and adults.

624. Assessment 3: Rorschach Technique. (3)

Prerequisite: acceptance into clinical psychology program.

Theory and skill training in administering, scoring, and interpreting the Rorschach Test.

625. Advanced Objective Assessment. (3)

Prerequisite: acceptance into clinical or school psychology program.

In-depth look at MMPI.

631. Professional Issues in Organizational Psychology. (3)

Prerequisite: Psych 531.

Consultant involvement in executive and management decision making, focusing on social responsibility and ethics.

640R. Seminar in Personality. (3)

Prerequisite: Psych 540.

Intensive analysis of selected current topics in personality research and theory.

641R. Values, Religion, and Mental Health. (1-3)

Values and religious issues in personality, psychotherapy, prevention, and mental health education.

645. Cultural Diversity and Gender Issues. (3)

Clinical issues in the context of cultural diversity and contemporary social trends.

648R. Seminar in Theoretical/Philosophical Psychology. (3)

Prerequisite: instructor's consent or acceptance into PhD program.

Analysis of theoretical and philosophical issues in the discipline of psychology.

650R. Seminar in Social Psychology. (3)

Prerequisite: Psych 552 and instructor's consent.

Variable topics including attitude change, social cognition, prosocial and antisocial behavior, group dynamics, and organizational psychology.

651. Psychotherapy 1: Relationship and Psychodynamic. (3)

Prerequisite: acceptance into clinical psychology program.

Theory and techniques employed in psychotherapy that focus on relationship and psychodynamic approaches.

652. Psychotherapy 2: Cognitive-Behavioral. (3)

Prerequisite: acceptance into clinical psychology program.

Theory, treatment principles, and techniques of cognitive-behavioral therapy.

653. Psychotherapy 3: Child and Adolescent. (3)

Prerequisite: acceptance into clinical psychology program.

Theory and treatment techniques of child and adolescent therapy.

654. Psychotherapy 4: Group. (3)

Prerequisite: acceptance into clinical psychology program.

Theory and techniques of small-group processes.

655. (Psych-Soc 630) Attitude Measurement and Change. (3)

Prerequisite: instructor's consent.

Attitude development, change, and assessment, focusing on both individual and mass persuasion.

660R. Seminar in Learning. (3)

Prerequisite: instructor's consent.

Critical review of contemporary literature in field of learning psychology.

667R. Seminar in the Experimental Analysis of Behavior. (3)

Prerequisite: instructor's consent.

Intensive overview of current research and theory and the attendant philosophy of behaviorism.

675. Personality Dynamics. (3)

Prerequisite: acceptance into clinical psychology program.

Theories and applications to clinical situations.

677R. Seminar in Cognitive Processes. (3)

Prerequisite: Psych 575.

Advanced topics in cognitive science and applied artificial intelligence.

678R. Seminar in Mathematical Psychology. (3)

Variable topics including multivariate statistical methods, graphical data analytic techniques, and various mathematical models.

680. Clinical Neuropsychology. (3)

Prerequisite: acceptance into clinical psychology program and Psych 585.

Comprehensive study of the human dysfunctional brain.

684. Advanced Behavioral Neurobiology. (3)

Prerequisite: Psych 381, 382.

Intense examination of contemporary developments in psychobiology and behavioral neurosciences.

685R. Seminar in Behavioral Neurobiology. (3)

Critical examination of topics of current interest taken from contemporary literature.

687R. Seminar in Psychopharmacology. (3)

Prerequisite: Psych 585 or equivalent.

Major classes of psychoactive drugs, emphasizing drug-behavioral interactions.

693. Teaching Psychology. (3)

Prerequisite: enrollment in master's or PhD program.

Prepares graduate students for independent teaching experiences.

694. Psychology Teaching Practicum. (1)

Prerequisite: Psych 693.

Lab portion of Psych 693 entailing actual teaching experience and its supervision.

695R. Independent Readings. (1-3)

Prerequisite: instructor's consent.

Faculty-supervised readings as arranged by student.

697R. Independent Research. (1-4)

Prerequisite: instructor's consent.

Faculty-supervised research as arranged by student.

699R. Master's Thesis. (1-9)

Concluding research for master's program, culminating in final oral examination.

700R. Externship in Clinical Psychology. (0.5)

Supervised reimbursed experience in community agencies.

710R. Readings in Clinical Psychology. (1-3)

Prerequisite: acceptance into clinical psychology program.

Guided individual study in various topics.

711R. Topics in Clinical Psychology. (0.5-3)

Prerequisite: acceptance into clinical psychology program.

Theory and practice in specific topics.

712R. Topics in Neuropsychology. (3)

Prerequisite: acceptance into clinical psychology program.

Current topics, including neuroanatomy, and adult and child assessment. Other topics as determined by student interest.

740R. Case Conference. (0.5)

Prerequisite: acceptance into clinical psychology program.

Case presentations; professional, ethical, and research issues pertinent to assessment and intervention.

741R. Integrative Practicum. (1-3)

Prerequisite: acceptance into clinical psychology program.

Supervised assessment and intervention, integrating psychopathology diagnosis and treatment.

742R. Projects in Clinical Psychology. (3)

Prerequisite: acceptance into clinical psychology program.

Advanced study or skill training in various areas.

743R. Clerkship in Clinical Psychology. (1)

Prerequisite: acceptance into clinical psychology program.

Supervised experience in community agencies.

745, 746, 747, 748. Clinical Internship. (2 ea.)

Prerequisite: acceptance into clinical psychology program.

Full-time training at approved mental health agency.

799R. Doctoral Dissertation. (1-9)

Concluding research for doctoral program, culminating in final oral examination.

FACULTY

ALLEN, MARK D., *Assistant Professor.*

PhD, Johns Hopkins University, 2000. Psycholinguistics and the Neurobiology of Language; Lexical Processing.

BALLIF-SPANVILL, BONNIE, *Professor.*

PhD, Brigham Young University, 1966. Peace and Violence in Women and Men Across Ages and Cultures Worldwide.

BARLOW, SALLY H., *Professor.* PhD,

University of Utah, 1978. Theory and Training in Individual and Group Therapy; Diversity; Peacemaking.

BIGLER, ERIN D., *Professor.* PhD,

Brigham Young University, 1974. Neuropsychology; Neuroanatomy; Neuroimaging.

BLOCH, GEORGE J., *Professor.* PhD,

Stanford University, 1968. Physiological Psychology; Neuroendocrinology; Chronic Stress.

BROWN, BRUCE L., *Professor.* PhD, McGill University, Canada, 1969. Psycholinguistics; Statistics and Measurement; Theory and Philosophy.

BURLINGAME, GARY M., *Professor.*

PhD, University of Utah, 1983. Group Therapy; Process and Outcome; Outcome Assessment; Measurement/Methodology.

CARPENTER, BRUCE N., *Associate*

Professor. PhD, University of Wisconsin, Madison, 1980. Clinical Assessment; Psychopathology; Stress and Coping.

GANTT, EDWIN E., *Assistant Professor.*

PhD, Duquesne University, 1998. Theoretical and Philosophical Foundations of Psychology and Science; Hermeneutic-Phenomenological Approaches to the Psychological Study of Empathy and Altruism; Qualitative Research Methods.

HEDGES, DAWSON W., *Associate*

Professor. MD, University of Utah, 1988. Psychiatry; Neuroscience; Neuroimaging and Neuroendocrinology.

HIGBEE, KENNETH L., *Professor.* PhD,

Purdue University, 1970. Human Memory; Cognitive Psychology; Research Methodology.

HOLT-LUNSTAD, JULIANNE, *Assistant*

Professor. PhD, University of Utah, 2001. Stress and Coping; Social Relationships; Personality; Health Psychology, Behavioral Medicine.

HOPKINS, RAMONA O., *Assistant*

Professor. PhD, University of Utah, 1996. Cognitive Neuroscience and Neurobiological Approaches to Cognition; Brain Imaging; Brain Behavior Relationships; Emotion; Health-Related Quality of Life; Cognitive Development; Family Stress Due to Illness.

LAMBERT, MICHAEL J., *Professor.* PhD,

University of Utah, 1971. Research in Psychotherapy Process and Outcome; Measuring Treatment Outcomes.

- LAYNE, CHRISTOPHER**, *Assistant Professor*. PhD, University of California, Los Angeles, 1996. Clinical Psychology; Adolescent Development; Developmental Psychopathology; Group Treatment; School Board and Group Interventions with Traumatized Adolescents and Families.
- MAUGHAN, MICHAEL L.**, *Associate Professor*. EdD, Utah State University, 1970. Psychotherapy, Adult Development; Biofeedback/Stress Management.
- MILLER, HAROLD L., JR.**, *Professor*. PhD, Harvard University, 1975. Experimental Analysis of Learning and Motivation.
- PEDERSEN, DARHL M.**, *Professor*. PhD, University of Illinois, 1962. Quantitative Methods; Personality; Environmental and Sports Psychology.
- RIDGE, ROBERT D.**, *Associate Professor*. PhD, University of Minnesota, 1993. Interpersonal Behavior; Social Influence; Applied Social Psychology.
- ROBINSON, PAUL W.**, *Professor*. PhD, Utah State University, 1973. Behavior Modification; Analytical Methodology; Parenting.
- SLIFE, BRENT**, *Professor*. PhD, Purdue University, 1981. Theoretical/Philosophical; Theoretical Underpinnings of Personality and Psychotherapy; Systems Approaches to Therapy.
- SORENSEN, DAVID M.**, *Professor*. EdD, Harvard University, 1970. Psychodiagnostics; Human Development.
- SPACKMAN, MATTHEW P.**, *Assistant Professor*. PhD, Georgetown University, 1998. Philosophical and Historical Approaches to Emotion, Social Functions of Emotions; Attribution of Responsibility for Emotions; Quantitative and Experimental Methods.
- SPANGLER, DIANE L.**, *Associate Professor*. PhD, University of Oregon, 1994. Depression; Cognitive Theory and Therapy; Eating Disorders.

- STEFFEN, PATRICK R.**, *Assistant Professor*. PhD, University of Miami, 1998. Clinical Health Psychology; Stress and Development of Disease; Ambulatory Assessment of Psychological and Physiological Functioning During Everyday Life.
- STEFFENSEN, SCOTT**, *Associate Professor*. PhD, University of Utah, 1987. Neuropharmacology; Neuroscience Center.
- WELLS, M. GAWAIN**, *Professor*. PhD, Purdue University, 1972. Clinical Child Psychology; Child and Adolescent Treatment.
- WILLIAMS, RICHARD N.**, *Professor*. PhD, Purdue University, 1981. Theoretical and Philosophical Foundations of Psychology.

GEORGE W. ROMNEY INSTITUTE OF PUBLIC MANAGEMENT

Director: Gary C. Cornia

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THE PROGRAM OF STUDIES

Administered through the Romney Institute of Public Management, the master of public administration (MPA) program prepares men and women for leadership in the public and not-for-profit sectors.

Leadership in this context provides unique opportunities for service to others. The faculty and students of the MPA program are dedicated to the philosophy that students should develop excellence in both knowledge and management skills, based on a solid ethical foundation. The success of this philosophy is demonstrated by the wide variety of leadership positions now held by alumni throughout the world. Graduates hold leadership positions in state and local governments, federal agencies, research organizations, business firms, and a variety of nonprofit organizations. They are city managers, personnel directors, policy analysts, and finance directors.

Today the public sector is called on to assist in areas that were traditionally the sole domain of profit organizations. Never before has there been a greater need for professionally trained public managers, and never before has there been greater opportunity for dedicated and qualified public managers to provide leadership in shaping the course of human affairs through public institutions and programs.

The Romney Institute offers two programs leading to the MPA degree: the preservice and the in-service or

executive program. Both are accredited by the National Association of Schools of Public Affairs and Administration (NASPAA). The preservice program is a two-year, full-time program; approximately forty to fifty students are admitted each year. The executive, or in-service program, is normally a three-year program taught one night a week. (A two-year option is available, as well as a one-calendar-year option. Please see the institute for more information.) Approximately forty students are admitted to the executive MPA program each year. There is also a joint degree, the MPA/JD degree. Admission to the joint program is contingent upon acceptance into both programs.

Public Administration—MPA

The preservice MPA program is designed to provide an understanding of the essential body of knowledge and to develop the basic skills needed for professional management. Such essentials include quantitative analysis, managerial economics, management philosophy and strategy, human resource management, accounting, budget and finance, ethics, and communication. These skills are taught through practical class and field experiences, case studies, formal and computer simulations, and special workshops and seminars. Second-year courses are designed around an individual's desired area of concentration. Such areas include: Local Government Management, Human Resource Management, Financial Management and Analysis, and Not-for-Profit Management (domestic or international). Emphasis in each of these concentrations is given to the conceptualization of the larger political and social issues as they relate to the administration of government and nonprofit programs.

Admission and Entry.

- Semesters of entry and application deadlines: fall, March 1 for the preservice program and May 1 for the executive program.
- Application requirements: minimum 3.0 GPA on a 4.0 scale for last

60 hours and a general career interest in public management as reflected in a statement of intent.

- Entrance examination: GMAT or GRE.

Requirements for Degree.

- Credit hours: minimum 64 course work hours.
- Required courses:
Public Administration Environment: PMgt 610, 682, 684.
Human Resource Management: PMgt 640, 642R, 643, 645.
Financial Resource Management: PMgt 621, 622, 628.
Decision Making and Analysis: PMgt 603, 630, 632, 685.
Communication: PMgt 662.
- Concentration courses: one of the following areas of concentration must be chosen by the beginning of the second year: Local Government Management, Human Resource Management, Financial Management and Analysis, and Not-for-Profit Management (domestic or international).
- Electives: determined in consultation with faculty advisor. Some classes may be taken in other graduate departments.

The preceding does not represent the full range of requirements and opportunities in the program. See the Marriott School Graduate Catalog for greater details.

Executive Program—MPA

Persons with significant public management experience who desire to pursue the master's degree program while continuing to work full-time are encouraged to apply. All courses in the program are offered in the evenings.

The executive MPA program consists of successful completion of at least 42 semester hours of approved course work. Classes are scheduled in such a way so that students will normally be able to take up to 6 hours per semester. On this schedule, students can complete the degree in eight semesters.

Admission and Entry.

- Semesters of entry and application deadlines: see preservice MPA program.
- Application requirements: see preservice MPA program. (**Note:** entrance exam not required.)
- Prerequisite: applicants are required to have a minimum four years of full-time professional, administrative, or supervisory experience in the public sector, or the equivalent. Applicants must presently hold, or assume in the near future, a midlevel or higher administrative responsibility.

Requirements for Degree.

- Credit hours: minimum 42 course work hours.
- Required courses:
Public Administration Environment: PMgt 610, 682, 684.
Human Resource Management: PMgt 640, 643, 645.
Financial Resource Management: PMgt 621, 622, 628.
Decision Making and Analysis: PMgt 603, 630, 632, 685.
Communication: PMgt 662.
- Electives (6 credit hours): determined in consultation with faculty advisor.

Joint Program—MPA/JD

Because of the unique advantages of a joint degree in law and public administration, the Romney Institute of Public Management and the J. Reuben Clark Law School have approved a four-year joint degree program. This is possible because of the overlapping interests and direction of the two individual programs.

FINANCIAL ASSISTANCE

The Romney Institute of Public Management utilizes the Marriott School's financial aid provisions. Qualified students can receive aid from the following: the Marriott School of Management Scholarship Fund, private scholarship donations, assistantship awards, and loan assistance.

Scholarships. The Marriott School of Management currently has over

sixty-five private scholarships. Information and applications are available for second-year students in 730 TNRB (deadline: March 31). In addition, the MPA program has scholarship funds that include two private scholarships:

- The LeRoy and Agda Harlow City Management Scholarship.
- The Gale Wilson and City Management Friends of BYU Scholarship.

Assistantships. Research and teaching assistantships are available for qualified second-year students.

Loans. Several loans are available for Marriott School students:

- Marriott School loans: available to full-time Marriott School day students. Marriott School loans are handled on an individual basis, dependent on financial need and standing within the participating program.
- BYU short-term loans: available for up to the cost of tuition only.
- Federal Stafford loans: subsidized by the U.S. government. Not available for international students.

More information on and applications for these loans are available from the BYU Financial Aid Office, A-41 ASB, (801) 422-4104.

RESOURCES AND OPPORTUNITIES

The N. Eldon Tanner Building. The Tanner Building, which houses the Marriott School of Management, is one of the finest facilities of its kind. The dramatic seven-story atrium at the building center is equipped with study tables with Ethernet connections and houses the Marketplace Cafe. Surrounding the atrium are lecture and seminar rooms, study rooms, and a computer laboratory.

The Marriott School of Management. The Marriott School is recognized as one of the outstanding management schools in the nation. Faculty are actively engaged in research and publication, and they fill leadership positions in a number of national professional organizations.

The school has developed innovative educational programs that include internships, executive visitation programs, special student consulting and research projects, and other activities designed to bring management education and training closer to management practice. This is accomplished, in part, through the Marriott School's National Advisory Council and the Executives on Campus Program.

The National Advisory Council.

Consisting of sixty-five to seventy prominent business and government executives, the National Advisory Council lends major support to the Marriott School. Students benefit by interacting with council members in special campus lectures and seminars and by visiting or working with these executives in their respective organizations. Furthermore, the council assists students with placement opportunities, helps develop funding sources for scholarships, and provides professional development for faculty members.

The Executives on Campus

Program. This program gives students an opportunity to interact with distinguished business and government leaders who come to campus. These executives visit classes and meet with student organizations as well as participate in the Executive Lecture Series and Entrepreneurship Lecture Series.

COURSE DESCRIPTIONS

582. Ethics, Business, and Society. (2-3)

Prerequisite: Marriott School of Management graduate student status.

Introduction to ethical issues in business, business-government-society relationships, and key issues in international business.

603. Managerial Accounting and Computer Concepts. (1-4)

Accounting systems and processes emphasizing use of management control, financial analysis, decision making, performance evaluation. Spreadsheets and database management.

607. Performance Auditing and Program Evaluation. (2-3)

Auditing and evaluating the efficiency of operations and the effectiveness of program outcomes in governmental and not-for-profit entities.

610. Managerial Economics. (1-3)

Utilizing economic concepts in the public sector, including an analysis of exchange, specialization, costs, markets for goods and services, and market failure.

615. Urban and Regional Economics. (2-3)

Economic analysis of market forces in development of cities, firm location decisions, urban economic development, and urban land-use patterns.

619R. Seminar in Economic Analysis. (1-3)

Advanced study in economics with variation in topics to meet current needs.

621. Public Budgeting. (2-3)

Management of public financial resources: budget allocation, control, and planning.

622. Government Finance. (2-3)

Acquisition and management of government financial resources such as taxes, user fees, and revenue sharing.

623. Grant Writing and Fund Raising. (2-3)

Introduction to and practice in writing applications for grants from foundations and government. Other types of fund-raising practices in not-for-profit management.

625. Debt Management. (3)

Advanced study of capital markets, debt instruments, bond issues, debt servicing, and financial disclosure requirements.

627. Cash Management and Investments. (3)

Cash-management systems, policies, and processes in the public sector; banking services and relationships; and the investment of idle funds.

628. Managerial Cost-Benefit Analysis. (2-3)

Principles and methodologies of cost-benefit analysis for managerial decision making, cost control, and performance evaluation in the public sector.

629R. Seminar in Financial Management. (2-3)

Advanced study in public-sector financial management and analysis, with variation of topics to address emerging issues and meet current needs.

630. Statistical Analysis. (3)

Use of statistical techniques for decision making, emphasizing measurement, descriptive statistics, hypothesis testing, and regression.

632. Quantitative Decision Making. (1-3)

Introduction to procedures commonly used in analyzing public programs and problems.

633. Advanced Decision Modeling. (3)

Spreadsheet decision analysis tools to provide powerful support for decision making in the public sector.

636. Process Management in the Public and Not-for-Profit Sectors. (2-3)

Applying process management theory, tools, and team building in the public and not-for-profit sectors.

640. Human Resource Management. (2-3)

Current theory and practice of human resource planning, job analysis, position classification, compensation, benefits, and labor relations.

641. Management and Organization Development. (2-3)

Current theory and practice for training programs in development of human resources, managers, and organizations.

642R. Management Development Seminar. (1-3)

Workshops and seminars designed for personal growth development and assessment of decision-making skills.

643. Leadership in Public Organizations. (3)

Experience-based class to help assess leadership style and develop a philosophy of management and an understanding of organization behavior.

644. Compensation and Benefits. (3)

Systems and procedures for determining and administering pay and employee benefits.

645. Human Resource Law. (1-3)

Introduction to human resource law.

647. Human Resource Staffing. (3)

Staffing needs, planning, recruiting, and hiring.

649R. Seminar in Human Resource Management. (1-3)

Advanced study in human resource management with variation in topics to meet current needs.

650. Public and Nonprofit Marketing. (2-3)

Role and application of marketing management in activities of government agencies and nonprofit institutions, emphasizing marketing research, analysis, and strategy.

651. Nonprofit Organization Management. (2-3)

Managing in the not-for-profit sector: philosophical foundations, history, governance, ethics, community assessment, asset development, managing volunteers, and legal structure of nonprofit organizations.

658. International Development Management. (2-3)

Issues in managing international development organizations: legal and cultural issues, funding sources such as the World Bank and International Monetary Fund, and leadership challenges.

659R. Seminar in International Management. (1-3)

Examination of international administration, with variation in topics to meet current needs, including comparative administration, technical assistance, and cultural restraints.

662. Communication in Public Administration. (2-3)

Crucial skills of communication and influence for managers and leaders in public and not-for-profit organizations.

671. State and Local Government Law. (1-3)

Introduction to legal principles involving governmental powers in a federal system, land use, state and local finance, public meetings/records, contracts, and liability for government actions.

675. Local Government 1: Form of Government and Service Delivery. (3)

Introduction to the dynamic world of local government. Topics include forms of government, political relationships and policy making, and issues of service delivery.

676. Local Government 2: Planning, Land Use, and Growth. (3)

Current issues facing local governments, including planning, land use and zoning, annexation, growth and sprawl, economic development, and other contemporary issues.

679R. Seminar in Local Government Administration. (1-3)

Advanced study in local government administration with variation in topics to meet current needs.

682. Ethics for Management. (2-3)

Forces operating on the manager and the ethical considerations of leadership in a democratic, pluralistic society.

684. Environment and Process of Public Administration. (3)

Governmental, legal, political, and social environment of public administration.

685. Management Strategy. (3)

Developing mission and goals, analyzing environment, and assessing and developing organization capacity.

689R. Seminar in Public Management. (1-3)

Varied public management topics that address emerging issues and meet current needs.

690R. Public Management Field Study. (1–3)

Faculty-directed applied research and technical assistance projects for public and nonprofit organizations.

691R. Readings and Conference. (1–3)

Prerequisite: departmental consent.

Individualized readings and consultations.

692R. Directed Research. (1–3)

Prerequisite: departmental consent.

Application of research methods relative to managers.

693R. Practicum. (1–4)

Prerequisite: departmental consent.

Planned application of administrative concepts in a management work situation and analysis of the impact.

FACULTY

ADOLPHSON, DONALD L., *Professor.*

PhD, University of Wisconsin, Madison, 1973. Policy Analysis.

BRADY, F. NEIL, *Professor.* PhD,

University of Texas, Austin, 1978. Ethics; Organizational Theory.

CORNIA, GARY C., *Professor.* PhD,

Ohio State University, 1979. Public Finance; Budgeting.

FACER, REX L., *Assistant Professor.*

DPA, University of Georgia, 2002. Local Government; Public Budgeting; Leadership.

HART, DAVID W., *Assistant Professor.*

PhD, State University of New York, Albany, 1997. Organization Theory; Business-Government Relations.

KNIGHTON, LENNIS M., *Professor.*

PhD, Michigan State University, 1966. Accounting; Finance; Performance Evaluation.

PARSONS, ROBERT J., *Professor.* PhD,

University of California, Riverside, 1971. Economics; Strategic Planning.

THOMPSON, JEFFERY A., *Assistant*

Professor. PhD, University of Minnesota, 1999. Leadership; Ethics; Nonprofit Management.

WADSWORTH, LORI L., *Assistant*

Professor. PhD, University of Utah, 2003. Leadership; Human Resource Management; Ethics.

WHEELER, GLORIA E., *Professor.* PhD,

University of Michigan, 1972. Quantitative Analysis; Human Resource Management.

WOLLER, GARY M., *Associate Professor.*

PhD, University of Rochester, 1992. Policy Analysis; Political Economy.

PUBLIC POLICY

Graduate Coordinator: Sven E. Wilson

783 SWKT

Provo, UT 84602-5516

(801) 422-7146

Fax (801) 422-0224

E-mail: publicpolicy@byu.edu

THE PROGRAM OF STUDIES

The interdisciplinary MPP degree in public policy analysis seeks to equip students with the skills required to evaluate laws, regulations, programs, and other efforts of governments. Public policy is not simply the aggregation of demands individuals and groups make on governments. It is ultimately concerned with ideas of justice and fairness and other values that are at the heart of democratic government, with expectations of economic efficiency, and with societal choices concerning the allocation of resources and distribution of benefit and burdens.

The study of public policy analysis involves and draws on, in general, several core disciplines, particularly economics, political science, and public management, in assessing policy choices. Analyses of specific policies may borrow from a number of relevant disciplines, such as biology, education, engineering, family sciences, geography, sociology, and social work.

Among the kinds of questions public policy students study are: What are governments doing to address social, economic, and natural resource problems, and how successful are they? What principles can guide government officials in intervening in the lives of families and individuals? How can the effectiveness of policies be compared and evaluated?

Graduates who have an understanding of the political process, how government works, and the nature of specific public policies are in a strong position to play a major role in helping these organizations deal

with the public policies affecting them. Studying public policy may also help prepare students for further study in economics, law, political science, public administration, and related fields.

One degree is offered in this interdisciplinary program: Public Policy—MPP.

Public Policy—MPP

The public policy master's program prepares students for careers as policy analysts in all levels of government and in other organizations that seek to study and affect public policy. Although most of the opportunities are in state and local government agencies, students may also pursue careers with the federal government and with international organizations.

The combination of general political and analytic skills with preparation in a specific policy area gives students a strong background for a wide variety of positions. Some students may choose careers that are specialized and focus on particular areas of policy, such as social welfare, education, environmental protection, natural resource preservation, housing, or health care, or they may choose more general or politically oriented careers. The study of public policy also prepares students for work in the private sector and nonprofit organizations and other areas that interact with government.

Admission and Entry.

- Semesters of entry and application deadlines: fall, March 1 (U.S. and international). Applicants should complete all parts of the application form required by the university, with appropriate fees and transcripts, and indicate the department/program as public policy.
- Prerequisite: baccalaureate degree, any field. Students should complete the following courses before enrolling in the graduate program (BYU equivalent listed in parentheses): principles of economics (Econ 110); introductory statistics (Stat 221 or 510); introductory calculus (Math 112 or 119). Applicants

who are missing these courses can still apply for admission, but they will not be formally admitted until the prerequisites have been completed. The GRE is required of all applicants.

Requirements for Degree.

- Credit hours: 48.
- Required courses: first year: PPol 501, 502, 503, 504, 505, 599R; one elective. Second year: PPol 511, 512, 513, 515; five electives.
- Three-part economics proficiency requirement: (1) Econ 380 or equivalent; (2) Econ 381 or 382 or equivalent; and (3) Econ 475 or PMgt 622. These courses are required for completion of the master's degree *but are not counted toward the 48 total hours*. The courses can be applied toward completion of a bachelor's degree, and students are encouraged to begin completing them before enrolling in the graduate program. D credit in the above courses will not be accepted.
- Electives: must be approved in advance by the graduate coordinator. Each course offers 3 credit hours. Students take the same core courses.
- Fields of specialization: at least four courses in a particular policy area. Current emphases are (1) health and aging; (2) natural resources and the environment; (3) education; (4) family and society; (5) public economics; and (6) advanced research methods. More information on requirements for each emphasis can be obtained from the Public Policy Graduate Handbook.
- Internship (599R): must be approved in advance by the graduate coordinator.

FINANCIAL ASSISTANCE

The financial aid application deadline is March 1. Financial aid available includes graduate student assistantships and scholarships.

COURSE DESCRIPTIONS

501. Introduction to Policy Analysis. (3)

Models of policy analysis; defining policy; problems and policy analysis questions.

502. Policy Process. (3)

Models of public policy making; interaction of politics and policy making.

503. Data Analysis 1. (3)

Introduction to descriptive and inferential statistics.

504. Data Analysis 2. (3)

Prerequisite: PPol 503.

Quantitative data collection and analysis.

505. Normative Theories of Policy Analysis. (3)

Alternative norms and values used in making policy choices.

511. Policy Analysis 1. (3)

Introduction to applied cost benefit analysis and methods of measuring economic values.

512. Policy Analysis 2. (3)

Prerequisite: PPol 511.

Advanced techniques of policy analysis.

513. Field Experience. (3)

Design and implementation of a policy analysis project.

514. Policy Analysis Workshop. (3)

Policy analysis projects in varying formats.

515. Graduate Seminar. (3)

Prerequisite: PPol 513.

Continuation of field experience project; preparation and presentation of final report.

599R. Academic Internship. (1–9)

Prerequisite: PPol 501, 502, 503, 504, 505; Econ 380, 382, 475, or equivalents.

Internship with an organization conducting policy analysis.

680R. Topics in Public Policy. (1–3)

Advanced topics in public policy methods, process, and specializations.

689R. Directed Individual Study. (1–3)

693R. Tutorial in Public Policy. (1-3)

Tutorial in public policy process and specializations.

FACULTY

Public Policy Advisory Committee:

J. R. Kearl
Kelly Patterson
E. Vance Randall
R. J. Snow
Sven E. Wilson

Current faculty teaching public policy-related courses include the following:

BRADFORD, SCOTT C., *Assistant Professor*. PhD, Harvard University, 1998. Economics.

BRYNER, GARY, *Professor*. PhD, Cornell University, 1982. Political Science.

CORNIA, GARY C., *Professor*. PhD, Ohio State University, 1979. Public Management.

GOODLIFFE, JAY M., *Assistant Professor*. PhD, University of Rochester, 1998. Political Science.

HITE, STEVEN J., *Associate Professor*. EdD, Harvard University, 1985. Educational Leadership and Foundations.

KEARL, J. R., *Professor*. PhD, Massachusetts Institute of Technology, 1975. Economics.

PATTERSON, KELLY, *Associate Professor*. PhD, Columbia University, 1989. Political Science.

POPE, CLAYNE L., *Professor*. PhD, University of Chicago, 1972. Economics.

RANDALL, E. VANCE, *Associate Professor*. PhD, Cornell University, 1989. Educational Leadership and Foundations.

SHOWALTER, MARK H., *Associate Professor*. PhD, Massachusetts Institute of Technology, 1991. Economics.

SNOW, R. J., *Professor*. PhD, Northwestern University, 1966. Political Science.

WILSON, SVEN E., *Assistant Professor*. PhD, University of Chicago, 1997. Political Science.

WOLLER, GARY M., *Assistant Professor*. PhD, University of Rochester, 1992. Public Management.

RECREATION MANAGEMENT AND YOUTH LEADERSHIP

Chair: Brian J. Hill

Graduate Coordinator: Patti Freeman

273-H RB

Provo, UT 84602-2030
(801) 422-1286

THE PROGRAM OF STUDIES

The Department of Recreation Management and Youth Leadership, in affiliation with the School of Family Life, offers a two-year graduate degree: Youth and Family Recreation—MS. Curriculum focuses on issues related to adolescent development, leadership, youth at risk, leisure philosophy, leisure and family theory, and strengthening families through wholesome recreation. The common goal of the program is to develop expertise and expand knowledge in building strong youth and families through recreation.

Students work closely with faculty in building conceptual models and conducting research that is both theoretical and applied in nature. After completing course work, each student writes a thesis that involves conducting a study related to youth and family recreation.

Each spring the department accepts four or five new students, who begin their studies the following September. The average student graduates after two years of course work and completing a thesis.

Youth and Family Recreation—MS

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Entrance examination: GRE general test.
- GPA: minimum 3.0 for last 60 semester hours of undergraduate work.

- Prerequisite: Applicants with undergraduate degrees from other disciplines may be admitted, but must complete 6-9 credits of selected prerequisite classes.

Requirements for Degree.

- Credit hours (33): 27 course work hours, plus 6 thesis hours (RMYL 699R).
- Required courses: MFT 563, MFHD 550, MFHD-Soc 600, RMYL 601, 611, 612, 699R; 3-9 hours of committee-approved statistics from Stat 510, 511, 512.
- Minor (optional): any approved minor.
- Thesis.
- Examinations: comprehensive written examination, oral defense of thesis.

FINANCIAL ASSISTANCE

Graduate awards are available in the form of assistantships and scholarships. Occasionally some graduate faculty members are awarded research grants that may include opportunities for paid research assistantships for department graduate students.

RESOURCES AND OPPORTUNITIES

The graduate office includes desks, storage, computers (with Internet access), printers, a small library, a refrigerator, and phone.

Opportunities: The department has an affiliation with key programs that offer excellent research opportunities and internship experiences, including **Aspen Grove Family Camp**, where families come to spend time together enjoying recreation and other wholesome activities, as well as **Farm Management Corporation**, which operates Church properties. On some of these properties, programs for youth and families, such as handcart treks, are operated.

Learning Resource Center. This center contains eighteen individual study areas for graduate students as well as computer, audio, and video equipment to assist them in their work.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

599R. Academic Internship. (1–8)

Prerequisite: instructor's consent.

Professional leadership practicum.

601. Theoretical Foundations of Family Recreation. (3)

Prerequisite: formal acceptance into recreation management graduate program.

Historical development, theoretical basis, and applied techniques of family recreation.

603. Readings in Youth and Family Recreation. (3)

Prerequisite: formal acceptance into recreation management graduate program.

Readings from professional literature and current publications.

604. Seminar on Youth and Family Recreation. (3)

Prerequisite: formal acceptance into recreation management graduate program.

Intensive investigation and discussion of current issues, problems, and trends in family recreation and youth programs.

611. Philosophy and Social Psychology of Leisure. (3)

Prerequisite: graduate status.

Historical and theoretical roots of developmental youth programs that stress preventative approaches. How to develop character, citizenship, moral and physical fitness, and volunteerism; service learning.

612. Issues and Applications in Family Recreation. (3)

Prerequisite: graduate status.

Survey of critical issues in family recreation; applying theory to address them.

699R. Master's Thesis. (1–9)

FACULTY

CATHERALL, THOMAS S., *Professor.*

EdD, Brigham Young University, 1980. Youth Research; Education and Play.

FREEMAN, PATTI A., *Associate*

Professor. PhD, Indiana University, 1993. Leisure Behavior; Outdoor Recreation.

GRAY, HOWARD R., *Professor.* PhD,

Pennsylvania State University, 1977. Therapy; Gerontology.

HILL, BRIAN J., *Professor.* PhD,

Clemson University, 1994. Family Recreation; Tourism; Wilderness Recreation; Resource Economics and Planning.

NELSON, DOUGLAS C., *Associate*

Professor. PhD, University of New Mexico, 1995. Youth Research; Outdoor Recreation

OLSEN, BURTON K., *Professor.* PhD,

University of Minnesota, Minneapolis, 1970. Research.

WIDMER, MARK A., *Associate*

Professor. PhD, University of Utah, 1993. Therapeutic Recreation; Assessment; Adolescence.

ZABRISKIE, RAMON, *Assistant*

Professor. PhD, University of Indiana, 2000. Therapeutic Recreation; Family Recreation.

RELIGIOUS EDUCATION

Chair—Ancient Scripture: Daniel K Judd

375-A JSB
Provo, UT 84602-5690
(801) 422-2067

Chair—Church History and Doctrine: Paul H. Peterson

375-B JSB
Provo, UT 84602-5690
(801) 422-3691

Graduate Coordinator: D. Kelly Ogden

316-C JSB
Provo, UT 84602-5690
(801) 422-3293

THE PROGRAM OF STUDIES

Religious Education offers one degree: Religious Education—MA. Within Religious Education there are two departments: Ancient Scripture and Church History and Doctrine.

Religious Education—MA

The master's degree in religious education is open to full-time teachers in the LDS Church Educational System (CES).

The master's degree is designed to provide advanced preparation for teaching in the LDS Church Educational System. Emphasis is placed primarily on five areas: Old Testament, New Testament, Book of Mormon, Doctrine and Covenants, and Church History. The degree provides the student with a sound historical, doctrinal, and methodological foundation. It is writing intensive and includes a thesis that is expected to enhance the student's abilities in research, critical thinking, and writing.

Religious Education admits approximately fifteen students to the master's program every other academic year. Course work begins summer term. The program is designed to be completed in two years.

Admission and Entry.

- Semesters of entry: summer only.
- Application deadline: December 1 (U.S. and international).
- Application requirements: baccalaureate degree; minimum GPA of 3.0 for last 60 hours of undergraduate work.
- Entrance examination: GRE general test.
- Completion of Church Educational System apprenticeship.
- Essay (1,000 words) on either (A) your philosophy on teaching and the teacher in the Church Educational System or (B) your analysis of a scripture block from the standard works.
- Two letters of recommendation. One of these letters must be from the applicant's CES area director and include signature approval of the zone administrator.

Requirements for Degree.

- Credit hours (36): minimum 30 course work hours plus 6 thesis hours (699R).
- Required courses: RelA 601, 611, 621; RelC 624, 625, 640, 650; RelE 500, 501, 595, 699R.
- Graduate committee: must include one member from Ancient Scripture faculty and one member from Church History and Doctrine faculty.
- Thesis.
- Examinations: written examination of course work and oral defense of thesis and course work.

RESOURCES AND OPPORTUNITIES

Religious Studies Center. The dean of Religious Education is also the general director of the Religious Studies Center, which promotes research in ancient studies, the Bible, the Book of Mormon, LDS Church history, the Doctrine and Covenants, the Pearl of Great Price, and world religions.

The center is a supporting and coordinating agency for religion-oriented research throughout the university. Concentrating on research, writing, and other scholarly activities, it is

not involved in classroom instruction or degree programs.

The Richard L. Evans Chair of Religious Understanding. The occupants of the Richard L. Evans Chair of Religious Understanding promote understanding among people of different faiths through teaching and other activities. The chair was established to articulate to a broad audience the religious values to which Elder Evans dedicated his life and to promote an enlightening exchange among Latter-day Saints, members of other faiths, and people of good will everywhere.

COURSE DESCRIPTIONS

Ancient Scripture

510R. Special Topics in Ancient Scripture. (1–3)

Prerequisite: graduate standing and instructor's consent.

Subjects and questions typically addressed by Church Educational System instructors. No more than 3 hours may apply toward a graduate degree.

601. Graduate Seminar on the Old Testament. (4)

Topics in the Old Testament emphasizing doctrinal, historical, and cultural background.

611. Graduate Seminar on the New Testament. (4)

Topics in the New Testament emphasizing doctrinal, historical, and cultural background.

614. Historical Background of the Bible. (3)

Historical and cultural contexts out of which the Old and New Testaments derive.

621. Graduate Seminar on the Book of Mormon. (4)

Topics in the Book of Mormon focusing on doctrine and the historical background of the text.

695R. Directed Readings in Ancient Scripture. (1–3)

Church History and Doctrine

510R. Special Topics in Church History and Doctrine.(1–3)

Prerequisite: LDS Church Seminaries and Institutes personnel only.

Subjects and questions typically addressed by Church Educational System instructors. No more than 3 hours may apply toward a graduate degree.

624. Graduate Seminar on the Doctrine and Covenants and Church History, Part 1 (1820–1900). (3)

Topics in LDS Church history, emphasizing the text of the Doctrine and Covenants.

625. Graduate Seminar on the Doctrine and Covenants and Church History, Part 2 (1900–Present). (3)

Topics in LDS Church history, emphasizing the twentieth-century Church.

640. History of the Christian Church. (3)

Background and history of Christianity from the first century A.D. to the present.

650. Doctrinal Contributions of the Restoration. (3)

Doctrinal contributions of the Restoration from Joseph Smith to the present prophets, seers, and revelators; LDS theology and practice.

695R. Directed Readings in Church History and Doctrine. (1–3)

Prerequisite: graduate standing; instructor's consent.

Topics include the Doctrine and Covenants, LDS Church history, LDS doctrine, Christian history, Christian theology, world religions, etc.

Religious Education

500. Educational Philosophy and Values in Religious Education. (2)

Philosophical basis and underlying values in religious education.

501. Scripture Teaching. (2)

Theory, methodology, and issues of scripture-based teaching in religious education.

595. Research Methods in Religious Education. (2)

Methodology in and resources for research in the four areas of focus: Church History and Doctrine, Old Testament, New Testament, and Book of Mormon.

699R. Master's Thesis. (1-6)

Prerequisite: graduate coordinator's consent.

FACULTY

BALL, TERRY B., *Associate Professor.*

PhD, Brigham Young U., 1992.

Archeobotany; Old Testament.

BAUGH, ALEXANDER L., *Associate Professor.* PhD, Brigham Young University, 1996. LDS Church History—Missouri Period, 1831–1839.

BENNETT, RICHARD E., *Professor.* PhD, Wayne State U., 1984. LDS Church History.

BLACK, SUSAN EASTON, *Professor.* EdD, Brigham Young University, 1978. LDS Church History.

BRINLEY, DOUGLAS E., *Professor.* PhD, Brigham Young U., 1975. LDS Marriage and Family.

BROWN, S. KENT, *Professor.* PhD, Brown University, 1972. Late Antiquity in the Near East.

CANNON, DONALD Q., *Professor.* PhD, Clark University, 1967. LDS Church History: New England and Nauvoo.

CHOI, DONG SULL, *Professor.* PhD, Brigham Young University, 1990. World Religions.

COWAN, RICHARD O., *Professor.* PhD, Stanford U., 1961. History of Temples.

DORIUS, GUY L., *Associate Professor.* PhD, Brigham Young University, 1994. Family Studies.

DRAPER, RICHARD D., *Professor.* PhD, Brigham Young University, 1988. Bible and Near Eastern History.

ESPLIN, RONALD K., *Professor.* PhD, Brigham Young University, 1981. LDS Church History: Brigham Young Era.

FLAKE, LAWRENCE R., *Professor.* DRE, Brigham Young University, 1970. LDS Church History Biography.

FRONK, CAMILLE, *Associate Professor.* PhD, Brigham Young University, 1996. Sociology—Middle East.

GARR, ARNOLD, *Associate Professor.* PhD, Brigham Young University, 1986. LDS Church History.

GARRETT, H. DEAN, *Professor.* EdD, Brigham Young University, 1974. Doctrine and Covenants.

GRIGGS, C. WILFRED, *Professor.* PhD, University of California, Berkeley, 1978. Early Christian History.

HEDGES, ANDREW H., *Associate Professor.* PhD, University of Illinois, 1996. American History.

HOLZAPFEL, RICHARD NEITZEL, *Associate Professor.* PhD, University of California, Irvine, 1993. Ancient History.

HOSKISSON, PAUL Y., *Professor.* PhD, Brandeis University, 1986. Ancient Near Eastern Studies.

HUNTINGTON, RAY L., *Associate Professor.* PhD, Brigham Young University, 1995. Sociology—Middle East.

JACKSON, KENT P., *Professor.* PhD, University of Michigan, 1980. Bible and Near Eastern History.

JUDD, DANIEL K., *Associate Professor.* PhD, Brigham Young University, 1987. Religion and Mental Health.

KELLER, ROGER R., *Professor.* PhD, Duke University, 1975. World Religions.

LARGEY, DENNIS L., *Associate Professor.* EdD, Brigham Young University, 1981. Book of Mormon.

LUDLOW, VICTOR L., *Professor.* PhD, Brandeis University, 1979. Judaism.

MCCONKIE, JOSEPH F., *Professor.* Brigham Young University, 1973. LDS Doctrine.

MERRILL, BYRON, *Associate Professor.* JD, University of California, Davis, 1975. Book of Mormon.

MILLET, ROBERT L., *Professor.* PhD, Florida State University, 1983. 19th and 20th Century Religious Thought.

OGDEN, D. KELLY, *Professor.* PhD, University of Utah, 1982. Hebrew Language and Historical Geography of the Holy Land.

OSTLER, CRAIG J., *Associate Professor.* PhD, Brigham Young University, 1995. Doctrine and Covenants.

PARRISH, ALAN K., *Associate Professor.* EdD, University of Southern California, 1981. Pearl of Great Price.

PETERSON, PAUL H., *Professor.* PhD, Brigham Young University, 1981. LDS Church History, Late 19th Century.

PIKE, DANA M., *Associate Professor.* PhD, University of Pennsylvania, 1990. Near Eastern Studies.

ROBINSON, STEPHEN E., *Professor.* PhD, Duke University, 1978. Early Christian History.

SEELY, DAVID R., *Professor.* PhD, University of Michigan, 1990. Near Eastern Studies.

SKINNER, ANDREW C., *Professor.* PhD, University of Denver, 1986. Intertestamental Period; Near Eastern History.

SPERRY, KIP, *Associate Professor.* MLS, Brigham Young University, 1974. Genealogy.

TOP, BRENT, *Professor.* PhD, Brigham Young University, 1984. LDS Doctrine.

VAN ORDEN, BRUCE A., *Professor.* PhD, Brigham Young University, 1986. Genealogy; 20th Century History.

WILLIAMS, CLYDE, *Associate Professor.* EdD, Brigham Young University, 1989. Book of Mormon.

WILSON, KEITH J., *Associate Professor.* PhD, University of Utah, 1995. Educational Administration.

WOODS, FRED E., *Associate Professor.* PhD, University of Utah, 1991. Middle Eastern Studies.

WRIGHT, DENNIS A., *Professor.* PhD, Arizona State University, 1978. Education Methodology.

SCHOOL OF SOCIAL WORK

Director: O. William Farley

Associate Directors: Kevin M.

Marett and Margie Edwards

Graduate Coordinator: Kevin M.

Marett

Fieldwork Director: Jini Roby

221 KMB

Provo, UT 84602-4472

(801) 422-3282

E-mail: socialwork@byu.edu

Internet: <http://socialwork.byu.edu>

THE PROGRAM OF STUDIES

Accredited by the Council on Social Work Education.

The School of Social Work is committed to the general objective of the social work profession, which is to promote the welfare of society by enhancing the social functioning of individuals, families, groups, organizations, and communities. The goal of the MSW program is to prepare students for the practice of clinical social work, with an emphasis on work with the family and children. The School of Social Work offers a core curriculum in the basic knowledge, skills, and values essential to all social work practice.

One graduate degree is offered in the School of Social Work: Social Work—Master of Social Work (MSW).

Approximately forty students are admitted to the MSW program each fall semester. Candidates usually pursue the degree over a contiguous twenty-month period, which includes 1,100 clock hours of field practicum.

Social Work—MSW

The curriculum is designed around a psychosocial approach to practice within an integrating framework of systems theory. This approach will allow the practitioner to be responsive to the special issues of diversity in a pluralistic society.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 15 (U.S. and international).
- Application requirements:
 - Complete a four- to six-page, typed (double-spaced) statement of intent organized under five headings: (1) your limitations and talents; (2) your reasons for pursuing a master's degree at this point in your life; (3) your understanding of the profession of social work and reasons for wanting to be a social worker; (4) your reactions to your family of origin during your developmental years from your present perspective; (5) elaboration on any paid and/or voluntary experiences in human services (e.g., crisis line, formal field practicum, summer camp counseling), including growth-producing experiences in leadership, travel, military service, etc. Write your name, social security number, signature, and the MSW code (735960) on the cover page. Submit the MSW admissions requirements form.
 - Complete a statement of psychological health with a witness signature.
 - Include a resumé with specifics, including dates, regarding education and paid and volunteer experience.
- Entrance examination: at school's discretion.
- Prerequisite: applicants are expected to have prepared themselves for the MSW program by completing the following courses: (A) research methods and statistics (5–6 hours); (B) human biology (3 hours); (C) abnormal behavior (3 hours); (D) human development life span—infancy through aging (3 hours); (E) social sciences (3 hours), e.g., sociological theory, social organization, political science, etc.; (F) introduction to social work course.

Note: At least a B grade in each prerequisite course is required for application to the program.

Requirements for Degree.

- Credit hours for students entering without an undergraduate social work degree: minimum 64 course work hours distributed as follows: social work practice courses (20 hours); human behavior and social environment (10 hours); social welfare policy (6 hours); research (6 hours); field practicum (12 hours); electives (10 hours).
- Electives: minimum of 10 hours, 6 of which are clinical. Two of the elective classes may be selected from a variety of clinical/family courses outside the school or from other educational opportunities to be negotiated with the faculty advisor.
- Students who enter with an undergraduate social work degree will complete 59 total credit hours (instead of 64). Credit is given for 9 hours. However, 6 of those 9 hours must be substituted with other electives.

FINANCIAL ASSISTANCE

Financial assistance is available through university funds. Research and teaching assistantships as well as field internships are available through the School of Social Work. Some scholarships are also available.

RESOURCES AND OPPORTUNITIES

The School of Social Work utilizes the Comprehensive Clinic, an interdisciplinary training and research facility. The facility houses state-of-the-art video and computer equipment, as well as a staff of skilled technicians and secretaries to support graduate student and faculty research. Faculty and student research is also facilitated through the Family Studies Center and the Women's Research Institute (both located on the third floor of the Kimball Tower). Students who plan on further graduate work are encouraged to conduct individual research or work with a faculty member.

Faculty research interests currently include: child welfare; poverty; computerization of social services; mental health; military social work; health care; substance abuse; women and gender; school social work; marriage and families; mood disorders; spirituality.

For a more detailed description of the graduate program requirements, see <http://socwork.byu.edu>.

COURSE DESCRIPTIONS

550 Crisis Intervention. (3)

Assessment and intervention in crisis situations with clients.

567. Social Services for the Aging. (2)

Prerequisite: instructor's consent.

Process and impact of social service delivery systems on the aged.

580. Social Work in the School Setting. (3)

Overview of knowledge and skills essential to the practice of social work in educational settings; emphasizes practical interventions when working with student/family/teacher/community resources.

595R. Directed Readings. (1-3)

Prerequisite: instructor's consent.

600. Applied Social Work Research and Statistics. (4)

Prerequisite: major status.

Overview and application of qualitative and quantitative social work research and statistical analysis. Issues of research ethics and oppressed populations.

601. Practice Evaluation. (2)

Prerequisite: SocW 600; major status.

Methods of social work practice evaluation, including a focus on clinical measures for monitoring client progress and outcomes.

610. Clinical Practicum 1. (1)

Prerequisite: concurrent enrollment in SocW 660; major status.

Taping students while they role-play various clinical problems/scenarios under supervision.

611. Clinical Practicum 2. (1)

Prerequisite: SocW 610; major status.

Clinical supervision of clients seen in the BYU Comprehensive Clinic, including videotaping of student therapy sessions.

620. Human Behavior and Social Environment 1: Person and Environment. (2)

Persons in their social environment as individuals, members of families, other groups, organizations, and communities. Cultural, social, psychological, biological, spiritual, and physical forces.

622. Human Behavior and Social Environment 2: Psychopathology. (3)

Prerequisite: Psych 342 or equivalent; SocW 620.

Etiology and symptoms of dysfunctional behavior and their effects on the individual, family, and community. Majors only.

623. Cultural Diversity Seminar. (1)

Social, cultural, ethnic, and racial experiences, needs, and beliefs of diverse persons.

624. Human Behavior and Social Environment 3: Marriage and Family Theories and Treatment. (2)

Prerequisite: major status.

Various models of marriage and family treatment; appropriate intervention skills.

626. Seminar in Professional Philosophy, Values, and Ethics of Social Work Practice. (2)

Prerequisite: major status.

Philosophical and ethical basis for social work and family therapy practice, including integrative framework for defining and implementing professional practice.

630. Social Welfare Policy 1: A Framework for Analysis, Goal Setting, and Change. (3)

Prerequisite: major status.

Analyzing and changing social policies and programs.

631. Social Welfare Policy 2: Social Work and Family Law. (3)

Prerequisite: major status; SocW 630.

The law relative to formation, functioning, and dissolution of families and delivery of social services to them.

654R. Field Practicum. (1-3)

Prerequisite: major status; field director's consent.

Practicum in social service agencies with an integrative seminar to examine relationship between theory and practice.

655R. Field Practicum. (1-3)

Prerequisite: major status; first-year placement.

Clinical practicum in social service agencies with an integrative seminar to examine relationship between theory and practice.

660. Social Work Practice: Casework. (2)

Prerequisite: major status; SocW 620 or concurrent registration; concurrent registration in SocW 659.

Psychosocial assessment of individuals and implementing interventions. Skills laboratory required.

661. Social Work Practice: Advanced Casework. (3)

Prerequisite: major status; SocW 660.

Building on skills acquired in SocW 660; using different microintervention models and approaches.

662. Social Work Practice: Group Work. (2)

Prerequisite: major status; SocW 620 or concurrent registration.

Structure, function, dynamics, and development of small groups, emphasizing group models and group theory.

663. Social Work Practice: Advanced Group Work. (1)

Prerequisite: major status; SocW 662.

Applying group theory to individual and family problems. Role of social workers in group process. Group leadership experience required.

664. Social Work Practice: Community Organization. (2)

Prerequisite: major status; SocW 622 or concurrent registration.

Basic practice theory, tactics, and strategies in working with neighborhoods, communities, and organizations toward planned change.

665. Social Work Practice: Introduction to Human Services Administration. (2)

Key managerial functions of complex organizations and institutions; administrative theory and selected management techniques.

666. Social Work Practice: Advanced Clinical Methods in Assessment/Intervention. (2)

Prerequisite: major status; SocW 661.

Linking psychosocial assessment with advanced clinical theory, skills, and techniques.

667. Interventive Methods with Children and Adolescents. (2)

Use of interventive methods regarding child and adolescent problems in addition to understanding reciprocal impact of significant systems, i.e., school, family, peers, church, health, socioeconomic status.

668. Advanced Marriage and Family Practice. (2)

Prerequisite: major status; SocW 624.

Advanced methods of intervention with marital dyads, family, and community.

670R. Special Topics in Advanced Clinical Practice. (1-3)

Prerequisite: instructor's consent.

Various topics offered as need or interest arises. Contact the School of Social Work for further information.

671. Play Therapy. (3)

Prerequisite: instructor's consent.

History and development of play therapy; model for practical application and child-centered theoretical approaches; primary emphasis on clinical child-centered play therapy.

672. Cognitive Therapy. (2)

Prerequisite: instructor's consent.

This particular model of psychotherapy is examined historically and currently. Basic process variables and techniques. Integration with other models.

673. Object Relations Therapy. (2)

Prerequisite: instructor's consent.

Object relations--based approaches to intervention, emphasizing treatment of clients with personality disorders, especially borderline disorders.

674. Human Sexuality and Social Work Practice. (3)

Prerequisite: SocW 624 or instructor's consent.

Overview of human sexuality. Introduction to treatment of sexual problems and disorders.

675. Substance Abuse. (2)

Prerequisite: instructor's consent.

Full spectrum of substance abuse interventions; intervening with selected special populations, such as those who have been sexually abused.

676. Theological Perspectives on Social Work Practice. (2)

Prerequisite: instructor's consent.

Interface of religious and social work values, attitudes, and principles.

680R. Selected Fields of Practice. (1-3)

Prerequisite: instructor's consent.

Current problems and treatments in social work practice.

681. Comparative International Social Welfare Policy. (3)

Prerequisite: instructor's consent.

Social welfare policies of various countries. Solving global social problems within framework of human rights directives.

682. LDS Family Services Programs and Policies. (2)

Prerequisite: instructor's consent.

LDS Family Services operation, philosophy, and policies; individual, family, and couples counseling; crisis pregnancy help, adoption preparation, etc., for LDS community; role of social worker explored/defined.

683. Practice in Child Services. (3)

Prerequisite: instructor's consent.

Working with the social service delivery system on problems related to child neglect and abuse, foster care, adoptions, etc.

684. Gender Issues in Social Work Practice. (2)

Prerequisite: instructor's consent.

Social work practice and specific problems and issues associated with both genders but focusing on changing expectations and roles of women.

698R. Master's Research Project. (1-3)

Prerequisite: major status.

Applying research and statistical methods to evaluative, experimental, and survey studies in social work. Research report of publishable quality required.

FACULTY

EDWARDS, MARGIE E., *Professor.* PhD, University of Utah, 1976.

Gerontology; American Indians; Mentoring Programs and Group Work.

FARLEY, O. WILLIAM, *Professor.* PhD, University of Utah, 1968. Social

Work Practice; Aging; Mental Health.

MARETT, KEVIN M., *Associate Teaching Professor.* PhD, Purdue University,

1989. Human Behavior; Marriage/Family Theories; Therapy and Clinical Supervision; Sex Therapy.

PANOS, PATRICK T., *Assistant Professor.* PhD, Brigham Young University,

1993. Cross-Cultural Assessment and Intervention; Computerization of Social Services; Biology of Behavior.

PEHRSON, KYLE L., *Professor.* DSW, Catholic University, 1980.

Personality Styles; Marriage and Family; The Military Family; Ethics.

PETTYS, GREGORY L., *Assistant Professor.* PhD, University of

Illinois, Urbana-Champaign, 1994. Mental Health; Children and Youth.

ROBY, JINI L., *Assistant Professor.* JD, MSW, Brigham Young University,

1990. Social Work and Family Law; Social Welfare Policy and Programs.

SEIPEL, MICHAEL M. O., *Professor.* PhD, Cornell University, 1982.

Health Care in Developing Countries; Poverty.

WALTON, ELAINE, *Professor.* PhD, University of Utah, 1991. Clinical

Practice; Child Welfare.

SOCIOLOGY

Chair: Vaughn R. A. Call
Graduate Coordinator: Ralph B. Brown

800 SWKT
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THE PROGRAM OF STUDIES

The aims of the graduate program in sociology are to educate students in the principles, theories, and methods of sociology; train them in an area of specialization; and create skilled professional teachers and researchers. Faculty in the department are active in producing quality research and maintaining a high level of instruction. Graduate students have many opportunities for funding and being involved in research activities. PhD students are also provided the opportunity to teach an undergraduate course during their graduate career.

The Department of Sociology offers two degrees: Sociology—MS and Sociology—PhD.

The Sociology Department admits an average of eight students (total) to the master's and doctoral programs each fall semester. Full-time students making good progress in the program will normally finish a master's degree in two years and a doctoral degree in four years.

Sociology—MS

The master's degree prepares students along two tracks: (1) doctoral work beyond the master's degree and (2) professional careers at the master's level as teachers and researchers.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10 (U.S. and international).
- Application requirements: entrance examination is GRE general test.
- Academic writing sample in English.

- Prerequisite: baccalaureate degree in sociology or equivalent.

Requirements for Degree.

- Credit hours (minimum 35): 29 course work hours, including at least 23 hours of formal course work in sociology, plus 6 hours of thesis (Soc 699R). Only course work with a grade of B– or better is acceptable.
- Required courses: Soc 600; 605 or 606; 610, 611; and for first-year graduate students 598R in fall and winter; minimum 9 additional hours of graduate sociology course work; demonstration of competence in sociological theory, research methods, and statistics.
- Thesis.
- Examination: oral defense of thesis.

Sociology—PhD

The sociology PhD is a professional degree. It prepares the student for a career in academia or other settings where independent research skills are required. Students can choose one of three different specializations in the sociology PhD: Comparative Family, Macro Comparative, and Community and Rural Studies.

Admission and Entry.

- Semesters of entry and application deadlines: fall, January 10 (U.S. and international)
- Application requirements: entrance examination is GRE general test.
- Academic writing sample in English.
- Prerequisite: master's degree in sociology or equivalent; master's thesis.

Requirements for Degree.

- Credit hours: 48 hours of approved course work, plus 18 dissertation hours (Soc 799R). Only course work with a grade of B– or better is acceptable.
- Required courses: Soc 600; 604 or 608; 605, 606, 610, 611; and for first-year graduate students 598R in fall and winter; minimum 9 hours in one specialty area selected for comprehensive examination; demonstration of competence at the doctoral level by required

course work and by examination in sociological theory, research methods, and statistics.

- Dissertation.
- Examinations: (A) qualifier exam at the beginning of the second semester; (B) two written comprehensive examinations in two of the following specializations: Comparative Family, Macro Comparative, or Community and Rural Studies; (C) oral defense of dissertation prospectus.
- Oral defense of dissertation.

FINANCIAL ASSISTANCE

The Department of Sociology offers graduate teaching and research assistantships. These are ten-month appointments with an expectation of twenty hours of work per week. Financial assistance is also available through other agencies in the university.

RESOURCES AND OPPORTUNITIES

The Department of Sociology utilizes as valuable resources the School of Family Life, the Women's Research Institute, the college computing lab, and the Kennedy Center for International Studies. Funding and research opportunities can be sought through these entities as well as through the department.

Faculty research interests cover a broad spectrum of social science research. However, the make-up of the department faculty generates most research in the following areas: family; religion; stratification; social organization and change; gender; race; and community.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin or see our Web page at <http://fiss.byu.edu/soc/>.

COURSE DESCRIPTIONS

515. Seminar in Sociological Practice. (3)

Prerequisite: Soc 315, 600, 606, 610.

Uses of sociological theory and methods to deal with individual, organizational, and societal problems. Techniques for communicating such knowledge to the nonsociologist.

524. Advanced Political Sociology. (3)

Social basis of political behavior. Modern theories and research concerning use of power and decision making.

525. Sociology of Religion. (3)

Prerequisite: Soc 111, 325, or instructor's consent.

Influences of social factors in the development of various religious systems.

527. Sociology of the LDS Church and Its People. (3)

The LDS Church from a social science perspective, including the Church as a new religious movement; LDS culture; the institutionalization process.

528. Sociology of Rural Communities. (3)

Prerequisite: Soc 311, 370, or instructor's consent.

Review and critique of major theoretical and methodological approaches to the study of community, with a focus on rural communities.

530. Sociology of International Development. (3)

Major theoretical paradigms of development with strategies and practical application in the international setting.

550. (Soc-FamSc) Contemporary Family Theories. (3)

Prerequisite: FamSc 250, Soc 311; or equivalents.

Introduction to basic micro, macro, and processual approaches to study of the family; social and political theory on the family; philosophical issues and assumptions underlying family theory, research, and practice.

561. The Family Institution. (3)

The family in different societies; problems created by various family systems.

565. The Individual and Family in Later Years. (3)

Developmental aspects of aging, focusing on the biophysical, cognitive, social, affective, and pathological dimensions in people aged fifty and over.

590R. Special Topics in Sociology. (1-3)

Prerequisite: instructor's consent.

Course content varies from year to year.

595R. Directed Readings. (1-3)

Individualized reading program supervised by faculty member. Pass/Fail only.

598R. Pro-Seminar. (1)

Current developments in sociology including research, proposals, professional meetings, teaching, and finding a job.

600. (Soc-MFHD) Graduate Research Methods. (3)

Prerequisite: MFHD or Soc 300 or equivalent.

Logic and conduct of experimental, quasi-experimental, nonexperimental, survey, and qualitative research.

602. (Soc-MFHD) Experimental Design. (3)

Prerequisite: Soc-MFHD 600, Stat 501 or equivalent, or instructor's consent.

Research methods, logic, writing, and data analysis.

603R. (Soc-MFHD) Research Practicum. (3)

Prerequisite: instructor's consent.

Design, data collection, data analysis, and write-up.

604. (Soc-MFHD) Ethnographic Research Techniques. (3)

Prerequisite: Soc-MFHD 600.

Rationale, methods, and limitations of qualitative research; includes participant observation and hermeneutic skills.

605. Multiple Regression Analysis (3)

Prerequisite: Soc 306 or instructor's consent.

Ordinary least squares and logistic regression techniques. Data acquisition, management, analysis, and report writing.

606. Intermediate Statistics. (3)

Prerequisite: Soc 306 or equivalent.

Path analysis, factor analysis, and event history techniques.

608. Seminar in Survey Research and Sociological Measurement. (3)

Prerequisite: Soc 600; 605 or 606.

Survey research techniques in the behavioral sciences, emphasizing research and sampling designs. Measurement techniques, emphasizing consequences of measurement decisions.

610. Classical Social Theory. (3)

Prerequisite: Soc 310, 311; or equivalents.

Philosophical foundations of sociological theory; works of major classical theorists such as Marx, Weber, Durkheim, Simmel, Mead, DuBois, Addams, and Parsons.

611. Contemporary Sociological Theory. (3)

Prerequisite: Soc 310, 311, 610; or equivalents.

Recent developments in sociological theory. In-depth analysis of structure and assumptions of contemporary sociological theories.

620. Theory and Research in Social Organization. (3)

Prerequisite: admission to graduate sociology programs; others admitted by instructor's consent.

Graduate survey of the field of social organization and the core subfields therein.

621. Complex Organizations. (3)

Prerequisite: instructor's consent.

Theoretical approaches and empirical studies of organizations, their structures, processes, and problems; studies of industrial organizations, universities, hospitals, etc.

622. Social Stratification. (3)

Prerequisite: Soc 111.

Status, class, and power systems in various societies.

623. Seminar in Race and Ethnic Relations. (3)

Major theories of race-ethnic relations; critical issues in the field.

625R. Seminar in the Sociology of Religion. (3)

In-depth analysis of theory and research in topical areas of the sociology of religion. Course content varies from year to year.

630. (Soc-Psych 655) Attitude Measurement and Change. (3)

Prerequisite: instructor's consent.

Attitude development, change, and assessment, focusing on both individual and mass persuasion.

637. Sociology of Feminist Theory. (3)

Prerequisite: Soc 367.

Analysis of traditionally accepted models by Freud, Erikson, and Kohlberg from a feminist perspective; review of the works of such contemporary theorists as Chodorow, Gilligan and Elshtain; French and American differences.

645. Seminar on Population Analysis. (3)

Prerequisite: Soc 306 or equivalent.

Availability, use, and interpretation of population data for local, state, and national areas applied to planning and evaluation.

650. Advanced Social Psychology. (3)

Processes of social influence, emphasizing theory and research testing. Basic principles of social behavior.

660. (Soc-MFHD) Child and Adolescent Socialization. (3)

Child and adolescent development in the context of social interaction, with particular emphasis on the family. Current theory and research evaluated.

667. Sociology of Gender. (3)

Gender as a central organizing principle of society; socialization, social and cultural change, social movements, social stratification, and social policy.

670. Contemporary Urban Social Structure. (3)

Prerequisite: Soc 370.

Research-oriented examination of social forces in contemporary urban life that influence patterns of human interaction.

678. Social Policy and Feminist Legal Thought. (3)

Prerequisite: instructor's consent and departmental approval; law students have priority. (Taught by law instructor with law students in class.)

Survey of recent literature regarding the impact of women on law and legal institutions and the impact of law and legal institutions on the definitions, roles, and status of women in our society.

681R. Seminar in Deviance, Crime, and Corrections. (3)

Prerequisite: Soc 380, 381 or 383, or instructor's consent.

In-depth analysis of current issues in the field. Tailored to student interests.

692R. (Soc-MFHD) Seminar in Family Relationships. (3)

Theory and research in topical areas of family study (topics presented on alternate years).

- Marital Stability
- Power and Gender Roles
- Marital Quality and Communication
- Family, Religion, and Education
- Household and Family Demography

697R. Directed Research. (1-3)

699R. Master's Thesis. (1-6)

706R. Advanced Statistical Methods. (3)

Prerequisite: Soc 605, 606.

Topics include advanced structural equations and hierarchical linear models, or panel data techniques and generalized linear models.

711. Seminar in Contemporary Sociological Theory. (3)

Prerequisite: Soc 710 or equivalent.

Recent developments in sociological theory. In-depth analysis of structure and assumptions of contemporary sociological theories.

720R. Seminar: Social Organization. (1-3)

Prerequisite: Soc 111, 620.

750. Seminar: Social Psychology. (3)

Prerequisite: Soc-Psych 650.
Evaluation of current cutting edge theory and research. Course content varies as course is offered every other year.

792R. (Soc-MFHD) Family Symposium. (0.5)

Presentation and discussion of professional papers about the family.

799R. Doctoral Dissertation. (1-9)

FACULTY

BAHR, HOWARD M., *Professor.* PhD, University of Texas, Austin, 1965.
Urban Problems; Ethnic Relations.

BAHR, STEPHEN J., *Professor.* PhD, Washington State University, 1972. Family; Deviance.

BROWN, RALPH B., *Associate Professor.* PhD, University of Missouri, Columbia, 1992. Rural Sociology; Community Development; Social Change.

CALL, VAUGHN R. A., *Professor.* PhD, Washington State University, 1977. Family Life Course; Research Methods; Aging; Education.

CHADWICK, BRUCE A., *Professor.* PhD, Washington University, 1967.
Research Methods; Family.

CORNWALL, MARIE, *Professor.* PhD, University of Minnesota, 1985.
Gender; Religion; Social Change.

DUFUR, MIKAELA J., *Assistant Professor.* PhD, Ohio State University, 2000. Stratification; Work and Occupations; Sport.

ENGLAND, J. LYNN, *Professor.* PhD, University of Pittsburgh, 1971.
Theory; Community.

FORSTE, RENATA, *Associate Professor.* PhD, University of Chicago, 1992.
Demography; Statistics.

HEATON, TIM B., *Professor*. PhD, University of Wisconsin, Madison, 1979. Demography.

HOFFMANN, JOHN P., *Associate Professor*. PhD, State University of New York, Albany, 1991. Criminology; Statistics; Sociology of Religion.

HOLLAND, KIMBERLEE B., *Assistant Professor*. PhD, Purdue University, 2002. Political Sociology; Medical Sociology; Law and Society; Women in Politics.

HORNE, CHRISTINE, *Assistant Professor*. JD, Columbia Law School, 1989; PhD, University of Arizona, 1997. Norms and Social Control; Law; Group Processes; Theory.

JACOBSON, CARDELL K., *Professor*. PhD, University of North Carolina, Chapel Hill, 1971. Social Psychology; American Race/Ethnic Relations; Sociology of Religion.

JOHNSON, BARRY L., *Professor*. PhD, University of North Carolina, 1977. Statistics; Medical Sociology.

KNAPP, STAN J., *Associate Professor*. PhD, Florida State University, Tallahassee, 1996. Family; Social Theory.

WARD, CAROL J., *Associate Professor*. PhD, University of Chicago, 1992. Race; Ethnicity; Education; Community; Ethnography.

SPANISH AND PORTUGUESE

Chair: J. Halvor Clegg

Graduate Coordinator: Russell M. Cluff

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THE PROGRAM OF STUDIES

Two degrees are offered through the Department of Spanish and Portuguese: Portuguese—MA and Spanish—MA.

Most students who complete a master's degree in the department either seek jobs in secondary education or continue their studies on the PhD level. Some have located positions with government agencies or in the business sector. Each year from ten to twenty students are admitted to the program. Although some candidates have completed their degree in as few as eighteen months, most usually require thirty-six months to meet all the requirements. Students are strongly encouraged to organize their schedules so as to finish the degree in no more than two years. Limits on financial aid available through the department begin after the fifth semester in the program.

Portuguese—MA

Areas of specialization: Portuguese Language, Portuguese Literature.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: applicants may be required to have an oral interview or to produce a tape demonstrating language proficiency. Candidates will also submit a previously written research paper in Portuguese, a one-page composition outlining their academic objectives, and their GRE general test scores.
- Prerequisite: baccalaureate degree in Portuguese or equivalent; minimum

(last 60 hours) GPA 3.3; minimum Portuguese GPA 3.5.

Requirements for Degree.

- Credit hours (33): 27 course work hours plus 6 thesis hours (699R).
- Core required courses: 21 course work hours, including Port 601A, B, or C and six courses in Portuguese, Brazilian, or Lusophone literature.
- Electives: 6 hours in any related area of study from Spanish and Portuguese.
- Thesis or two-paper option: 6 credit hours of Port 699R, plus an oral defense.
- Examinations: comprehensive, culminating written exam in specialty.
- Completion of three semesters (or equivalent) of a second foreign language other than English in addition to language of specialization.

Spanish—MA

Areas of specialization: Peninsular Literature, Latin American Literature, Hispanic Linguistics, and Spanish Pedagogy.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: as an entrance examination, applicants may be required to have an oral interview or to produce a tape demonstrating language proficiency. Candidates will also submit a previously written research paper in Spanish, a one-page composition outlining their academic objectives, and their GRE general test scores.
- Prerequisite: baccalaureate degree in Spanish or equivalent; minimum (last 60 hours) GPA 3.3; minimum Spanish GPA 3.5.

Requirements for Peninsular and Latin American Literature

Specializations:

- Credit hours: 33.
- Core required courses: 21 hours, including Span 601B and six courses in Peninsular or Latin American literature. At least two courses

must be taken from each of the two emphases.

- Electives (6 hours): 3 hours in Hispanic linguistics and 3 hours in Spanish pedagogy. (Span 673R does not count toward this requirement.)
- Thesis or two-paper option: 6 credit hours of Span 699R, plus an oral defense.
- Examinations: comprehensive, culminating written exam in specialty.
- Completion of three semesters (or equivalent) of a second foreign language other than English in addition to language of specialization.

Requirements for Hispanic Linguistics Specialization:

- Credit hours: 33.
- Core required courses: 21 hours, including Span 601A and six courses in Hispanic linguistics.
- Electives (6 hours): 3 hours in Peninsular or Latin American literature and 3 hours in Spanish pedagogy. (Span 673R does not count toward this requirement.)
- Thesis or two-paper option: 6 credit hours of Span 699R, plus an oral defense.
- Examinations: comprehensive, culminating, written exam in specialty.
- Completion of three semesters (or equivalent) of a second foreign language other than English in addition to language of specialization.

Requirements Spanish Pedagogy specialization:

- Credit hours: 33.
- Core required courses: 21 hours, including Span 601C, 671, 672, 674, 676, 679R; plus one course selected with and approved by advisor.
- Electives (6 hours): 3 hours in Hispanic linguistics and 3 hours in Peninsular or Latin American literature.
- Thesis or two-paper option: 6 credit hours of Span 699R, plus an oral defense.
- Examinations: comprehensive, culminating written exam in specialty.

- Completion of three semesters (or equivalent) of a second foreign language other than English in addition to language of specialization.

FINANCIAL ASSISTANCE

Students may receive a position as a student instructor depending on departmental needs and on their qualifications. All potential student instructors must have completed an undergraduate 3-hour phonetics course and a 3-hour methodology course, and they must participate in an intensive workshop held during the week previous to the commencement of fall classes. Continuing employment and the number of sections assigned to candidates each semester depend on department needs and on the students' performance as instructors and on their own academic progress. Tuition scholarships are available in amounts varying from partial to full tuition.

In addition to employment as student instructors, MA candidates may occasionally find on-campus jobs as readers, teaching assistants, or research assistants.

RESOURCES AND OPPORTUNITIES

The Department of Spanish and Portuguese utilizes the **Humanities Research Center for world-class computer-assisted language instruction.**

Students may choose to participate in a variety of **Study Abroad** programs conducted by the department in Europe and Latin America.

Every third year during the summer term, the College of Humanities offers the **Summer Language Institute**, a program that allows a student total immersion in foreign language teaching while receiving course credit. Housing is provided for participants where the language can be applied on a practical level.

Faculty research interests currently include: (1) acquisition of Spanish as

a second language (language teaching methodology, teacher training, oral proficiency testing, computer-administered placement and speaking tests); (2) Hispanic literature (Spanish medieval literature, Spanish golden age literature, eighteenth- and nineteenth-century Spanish literature, Spanish American women writers, Spanish women writers, Hispanic film, Spanish American poetry, modern Spanish poetry, literature and philosophy, contemporary Hispanic theatre, Mexican prose, metafiction and metatheatre, Hispanic romanticism, Spanish realist narrative, intersemiotic analogies, literature and science, Spanish cultural studies); (3) Portuguese literature (classical Portuguese literature, Brazilian literature); (4) Hispanic linguistics (Caribbean sociolinguistics, phonetic spectography; Romance semantics, Hispanic paleography, mood in the nominal clause, language contact and bilingualism).

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

Linguistics and English Language

(See Linguistics and English Language section of this catalog for courses.)

Portuguese

520. Advanced Portuguese Grammar. (3)

Applying contemporary grammatical concepts to problems in Portuguese grammar.

521. Romance Philology. (3)

Comparative study of the evolution of Latin into the modern Romance languages.

522. History of the Portuguese Language. (3)

Linguistic sources that contribute to formation of Portuguese.

529R. Special Topics in Portuguese Linguistics. (3)

Topics from semantics to dialectology to sociolinguistics.

599R. Academic Internship: Portuguese Internship. (1–3)

Prerequisite: Port 321 and instructor's consent.

For supervised internship credit on BYU Study Abroad programs only.

601A. Portuguese Linguistics and Research Methodology. (3)

601B. Literary Theory and Research Methodology. (3)

629R. Seminar in Portuguese Linguistics. (3)

639R. Luso-Brazilian Theatre Production. (3)

Theory and practice of dramatic performance. Includes participation in a play to be performed during semester. Total Port 639R credit toward any degree may not exceed 3 hours.

642. Camões. (3)

649R. Seminar in Portuguese Literature. (3)

652. Machado de Assis. (3)
Prerequisite: Port 441, 451, or equivalent.

653. Twentieth-Century Brazilian Literature. (3)

Prerequisite: Port 441, 451, or equivalent.

659R. Seminar in Brazilian Literature. (3)

661R. African Literature in Portuguese. (3)

Modern authors from the five African nations whose official language is Portuguese: Angola, Cabo Verde, Guiné Bissau, Mozambique, and São Tomé Príncipe. Authors include José Craveirinha, Mia Couto, Noémia de Sousa, José Tenreiro, Castro Soromenho, Luandino Vieira, Pepetala, and Baltasar Lopes among others.

662R. Literature of the Lusophone World. (3)

Authors from the eight nations whose official language is Portuguese, plus former colonies and regions of important Portuguese influence. Included are Luso-American and Azorean writers, as well as authors from East Timor (formerly Indonesia), Goa (India), and Macau (China).

675. Teaching Literature. (3)

Prerequisite: Port 601B

For graduate students who plan to pursue a career in teaching literature. One-third of class time: theory and techniques of literature instruction; two-thirds of class time: practice teaching in undergraduate literature courses.

680R. Directed Research in Portuguese. (1–3)

Prerequisite: written proposal subject to departmental approval.

Under direction of faculty member, designing and conducting research project that covers material not normally presented in regular course work. Research paper required. Total Port 680R credit toward any degree may not exceed 3 hours.

698R. Master's Project. (1–6)

699R. Master's Thesis. (1–9)

Spanish

520. Problems in Spanish Grammar. (3)

Application of contemporary grammatical concepts to problems in Spanish grammar.

521. Romance Philology. (3)

Comparative study of the evolution of Latin into the modern Romance languages.

522. History of the Spanish Language. (3)

Linguistic sources that contributed to formation of the Spanish language.

529R. Special Topics in Spanish Linguistics. (3)

Prerequisite: Span 520, 522.

Topics could include semantics, dialectology, or sociolinguistics.

577. Spanish Language Teaching Procedures. (3)

For public school teachers. Mastery of teaching skills specific to foreign language instruction. Lectures, demonstrations, practical experience. Taught only during summer term.

599R. Academic Internship: Spanish Internship. (1–3)

Prerequisite: Span 321 and instructor's consent.

For supervised internship credit on BYU Study Abroad programs only.

601A. Hispanic Linguistics and Research Methodology. (3)

Basic research fields in linguistics (i.e., phonology, philology, syntax, psycholinguistics), how research differs in each area, and specific theoretical issues associated with each. Bibliographical and field research methods and techniques of reporting findings.

601B. Literary Theory and Research Methodology. (3)

Introduction to literary theory, beginning with Aristotle's *Poetics* and continuing to present, but emphasizing major schools of literary theory in twentieth century. Bibliographical techniques and formats for critical essays.

601C. Research Designs in Hispanic Language Teaching. (3)

Designing and evaluating empirical research studies in foreign language learning and teaching methodology. Bibliographical techniques and methods of reporting findings.

620. Core Course in Hispanic Linguistics. (3)

Required of all MA literature and pedagogy specialists (optional for linguistics specialists who may not apply class to 30-hour requirement).

622. Hispanic Dialectology. (3)

Overview of the varieties of spoken Spanish.

625. Spanish Morphosyntax. (3)

Linguistic study of morphological and syntactic structure of Spanish.

626. Spanish Phonetics and Phonology. (3)

Prerequisite: Span 326 or instructor's consent.

Systematic study of articulatory and acoustic Spanish phonetics and of structural and generative approaches to phonological description of Spanish.

629R. Seminar in Spanish Linguistics. (3)**638. Hispanic Cinema. (3)**

Prerequisite: Span 339 or equivalent.

Introduction to study of film; background in appreciating best of motion picture art in Spain and Spanish America. Previous experience with film useful but not required.

639R. Hispanic Theatre Production. (3)

Prerequisite: director's consent.

Theory and practice of dramatic performance. Includes participation in play to be performed during semester. Total Span 639R credit toward any degree may not exceed 3 hours.

640. Medieval Spanish Literature. (3)

Prerequisite: Span 441 or equivalent.

Spanish Literature from *El Cantar de Mio Cid* (1140) through *La Celestina* (1499).

643R. Golden Age Literature. (3)

Prerequisite: Span 441 or equivalent.

Sixteenth- and seventeenth-century Spanish literature.

644. Don Quijote. (3)

Prerequisite: Span 441 or equivalent.

In-depth study of Cervantes's *El ingenioso hidalgo don Quijote de la Mancha*.

646R. Nineteenth-Century Spanish Literature. (3)

Prerequisite: Span 441 or equivalent.

Romanticism (1770s through 1870s) and/or the novels of Benito Pérez Galdós and his contemporaries.

648R. Twentieth-Century Spanish Literature. (3)

Prerequisite: Span 441 or equivalent.

Genre (twentieth-century novel, drama, or poetry) or particular school (Generation of 1898, Generation of 1927, etc.)

649R. Seminar in Spanish Literature. (3)**650R. Early Spanish American Literature. (3)**

Prerequisite: Span 451 or equivalent.

Indigenous literature (Maya, Nahuatl, etc.) and other texts written in Spanish colonial America through eighteenth century.

654R. The Spanish American Novel. (3)

Prerequisite: Span 451 or equivalent.

Selected Spanish American novelists such as Juan Rulfo, Gabriel García Márquez, Alejo Carpentier, Mario Vargas Llosa, etc.

655R. Spanish American Poetry. (3)

Prerequisite: Span 451 or equivalent.

Selected Spanish American poets, movements, and national traditions.

656R. Spanish American Drama. (3)

Prerequisite: Span 451 or equivalent.

Twentieth-century theatre from Spanish America and Brazil.

658R. The Hispanic American Short Story. (3)

Prerequisite: Span 451 or equivalent.

Introduction and development of an important literary genre in Spanish America, including works of Jorge Luis Borges, Julio Cortazar, Juan Rulfo, Gabriel García Márquez, and others.

659R. Seminar in Spanish American Literature. (3)**670R. Teaching Oral and Literacy Skills in a Foreign Language. (3)**

Examining, in alternate years, theory and techniques for teaching oral skills (speaking and listening) and literacy skills (reading and writing) in a foreign language.

671. Principles of Foreign Language Learning and Teaching. (3)

Core course work for all MA candidates. Basic theories and principles of language learning and teaching. History, current research, practices, trends, and issues.

672. Media and Technology in Foreign Language Instruction. (3)

Applying modern technology and instructional media in teaching foreign languages.

673R. Directed Teaching of Spanish. (1-3)

Prerequisite: Span 326, 377, and graduate assistantship in department.

Supervised, practical experience in teaching Spanish at the college level.

674. Teaching Hispanic Culture. (3)

Methods of researching and teaching Hispanic culture.

675. Teaching Literature. (3)

Prerequisite: Span 601B.

For graduate students who plan to pursue a career in teaching literature. One-third of class time: theory and techniques of literature instruction; two-thirds of class time: practice teaching in undergraduate literature courses.

676. Principles of Testing Foreign Language Skills. (3)

Test development and analysis for assessment of the four skills plus grammar and culture; survey and questionnaire construction.

678. Research Design in Foreign Language Instruction. (3)

Designing and evaluating empirical research studies in foreign language learning and teaching methodology.

679R. Seminar in Teaching Spanish. (3)

For experienced language teachers.

680R. Directed Research in Spanish. (3)

Prerequisite: written proposal subject to departmental approval.

Individualized study. Under direction of faculty member, designing and conducting research project that covers material not normally presented in regular course work. Research paper required. Total Span 680R credit toward any degree may not exceed 3 hours.

698R. Master's Project. (1-6)

Prerequisite: committee chair's consent.

Candidates in nonthesis program may complete approved field project as their writing/research experience.

699R. Master's Thesis. (1-9)

FACULTY

ALBA, ORLANDO, *Professor*. PhD, Universidad Complutense de Madrid, Spain, 1988. Hispanic Sociolinguistics.

BATEMAN, BLAIR E., *Assistant Professor*. PhD, University of Minnesota, 2002. Teaching Oral and Literacy Skills in Foreign Languages.

CLEGG, J. HALVOR, *Associate Professor*. PhD, University of Texas, Austin, 1969. Phonology; Spanish Language; Linguistics.

CLUFF, RUSSELL M., *Professor*. PhD, University of Illinois, 1978. Latin-American Literature.

DENNIS, RONALD D., *Professor*. PhD, University of Wisconsin, Madison, 1972. Brazilian Literature.

FAILS, WILLIS C., *Associate Professor*. PhD, University of Texas, Austin, 1984. Experimental Phonetics; Spanish and Portuguese Linguistics.

GARCÍA, MARA LUCY, *Associate Professor*. PhD, University of Kentucky, 1997. Twentieth-Century Spanish American Literature.

HEGSTROM, VALERIE, *Associate Professor*. PhD, University of Kansas, 1992. Golden Age Spanish Literature; Spanish Theatre; Spanish Women Writers.

KNAPP, NIEVES PÉREZ, *Assistant Professor*. PhD, University of Oviedo, Spain, 2003. Spanish Language; Language Teaching Methodology; Materials Development.

LABRUM, MARIAN B., *Associate Professor*. DML, Middlebury College, 1988. Translation/ Interpretation; Spanish American Literature.

LARAWAY, DAVID, *Assistant Professor*. PhD, Cornell University, 1998. Spanish American Narrative and Poetry.

LARSON, JERRY W., *Professor*. PhD, University of Minnesota, Minneapolis, 1977. Spanish Language Acquisition; Methodology; Technology.

LUND, CHRISTOPHER C., *Professor*. PhD, University of Texas, Austin, 1974. Classical Portuguese Literature.

LYON, THOMAS E., *Professor*. PhD, University of California, Los Angeles, 1967. Spanish American Literature.

MEREDITH, R. ALAN, *Associate Professor*. PhD, Ohio State University, 1976. Second-Language Teaching Methodology; Testing; Research Design.

PRATT, DALE J., *Associate Professor*. PhD, Cornell University, 1994. Nineteenth- and Twentieth-Century Spanish Literature; Realism; Generation of '98; Literature and Science.

QUACKENBUSH, L. HOWARD, *Professor*. PhD, University of Illinois, 1970. Latin-American Literature.

ROSENBERG, JOHN R., *Professor*. PhD, Cornell University, 1985. Nineteenth- and Twentieth-Century Spanish Literature; Romanticism; Historical Novel; Autobiography.

SHERMAN, ALVIN F., JR., *Professor*. PhD, University of Virginia, 1990. Eighteenth- and Nineteenth-Century Spanish Literature; Medieval Literature.

SMEAD, ROBERT N., *Associate Professor*. PhD, University of Texas, Austin, 1988. Hispanic Bilingualism, Border Spanish, Spanish Syntax.

STALLINGS, GREGORY C., *Assistant Professor*. PhD, University of California, Irvine, 1999. Twentieth-Century Spanish Poetry; Literary Theory.

TURLEY, JEFFREY S., *Associate Professor*. PhD, University of California, Berkeley, 1992. Spanish Linguistics; Romance Philology; Semantics; Medieval Literature.

WEATHERFORD, DOUGLAS J., *Associate Professor*. PhD, Pennsylvania State University, 1997. Latin-American Literature.

WILLIAMS, FREDERICK G., *Gerrit de Jong, Jr., Distinguished Professor of Luso-Brazilian Studies*. PhD, University of Wisconsin, 1971. Portuguese and Brazilian Literature.

WILLIAMS, G. LYNN, *Professor*. PhD, University of London, 1978. Spanish Linguistics.

STATISTICS

Chair: Howard B. Christensen
Graduate Coordinator: Bruce Schaalje

230 TMCB
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THE PROGRAM OF STUDIES

Statistics is a scientific discipline by which statisticians assist other scientists and researchers in making informed decisions in the face of uncertainty. Statisticians use skills—not only in statistics, but in other disciplines such as mathematics, computer science, business, management, and engineering—to solve problems. The application of statistics is the embodiment of the scientific method.

The graduate curriculum is designed to equip students with decision-making skills necessary for successful careers as professional statisticians. Although a firm foundation in theoretical statistics is provided, most of the courses are applied in nature, offering approaches to the solution of important real-world problems.

One degree is offered through the Department of Statistics: Statistics—MS. A statistics minor is also offered at both the MS and PhD level. A five-year combined BS/MS program is also offered, but it is restricted to students who begin their undergraduate major in statistics early in their academic career. Contact the department for further details.

From twenty to twenty-five students are currently enrolled in the master's program in statistics. Students with an undergraduate degree in statistics, or with a very strong mathematics background, can generally complete the master's program in a little over one year. Other students generally take two years to complete the program.

Statistics—MS

This program is designed to prepare students for work in industry and government or for PhD work in statistics.

Admission and Entry.

- Semesters of entry and application deadlines: fall, spring, summer, February 1 (U.S. and international). Generally, entry to the program occurs fall semester. There are some introductory applied classes available spring and summer for those with a limited background in statistics. (Students applying for the BS/MS program should apply during their junior year.) Contact the department for further information.
- Entrance examination: GRE general test; minimum 3.3 overall undergraduate GPA required. Every international applicant whose native language is not English is required to submit TOEFL scores.
- Prerequisite: Stat 212, 221, 322, 336, Math 214; CS 142; or equivalents. (Students applying to the BS/MS program should have completed Stat 441 as well.) Students whose native language is not English may be required to take one or more ESL classes, depending on the outcome of a departmental interview.

Requirements for Degree.

- Credit hours:
 Thesis option (30): minimum 24 course work plus 6 thesis hours (Stat 699R).
 Project option (33): minimum 30 course work (which must include Stat 590) plus 3 project hours (Stat 698R).
- Required courses: Stat 522, 525, 535, 591R. Other courses from Stat 512, 534, 536, 537, 545, 551, 590, 595R, 611, 631, 635, 690R, or other approved courses.
- Minor (optional): any approved minor.
- Thesis or project.
- Examinations: (A) comprehensive written examination covering both theory and methods, (B) oral defense of project or thesis.

- C+ or better in each class, with an overall cumulative 3.0 GPA in all MS degree classes.

Statistics—Minor

The statistics minor is offered to strengthen the data analysis skills of graduate students in the various experimental areas where statistical methodologies are frequently applied.

Master's Level.

- 9 hours in statistics courses numbered 400 or above except 510.
- Methods examination (Stat 511, 512) or theory examination (Stat 441, 442).

PhD Level.

- Stat 441, 442.
- 9 additional hours from statistics courses 500 and above except Stat 510.
- Methods examination (Stat 511, 512) and theory examination (Stat 441, 442).

FINANCIAL ASSISTANCE

The department has limited funds to supplement students' financial needs, and such funds are only available within departmental and university guidelines. Assistance is available in the following forms: tuition awards, internships, research assistantships, and tuition scholarships.

RESOURCES AND OPPORTUNITIES

Center for Collaborative Research and Statistical Consultation. The center operates with full access to all departmental resources to provide statistical expertise to faculty, graduate students, and off-campus researchers in other disciplines. Areas of particular strength are designing experiments and sample surveys and analyzing the resulting data. Problems are solved by application and adaptation of state-of-the-art methodology and development of new methodology as required.

Computing Facilities. The Department of Statistics provides

several excellent general computer laboratories furnished with modern computing equipment and software suitable for word processing, statistical graphics, data analysis, and statistical computing. These laboratories are reserved for the use of students in the department.

Department Research. Faculty members in the Department of Statistics carry out a rich variety of research programs. Research emphases include methodologies for combining data and information from multiple sources, Bayesian methods (including hierarchical models and elicitation), reliability of industrial and computing processes, statistical genetics and bio-informatics, mixed models and longitudinal data, design and analysis of experiments, and issues in statistical computation. In addition to these general areas, more specific research interests for individual faculty are listed in the faculty section immediately following the course descriptions.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

510. Introduction to Statistics for Graduate Students. (3)

Prerequisite: Math 97 or equivalent. Recommended: Math 110 or equivalent.

Introductory statistics course for graduate students outside the Statistics Department. Topics include probability, estimation, hypothesis tests, simple linear regression, analysis of variance.

511. Statistical Methods for Research 1. (3)

Prerequisite: Stat 510 or equivalent.

Basic statistical methodologies and experimental design. Topics include: analysis of variance, multiple regression, analysis of covariance, common experimental designs.

512. Statistical Methods for Research 2. (3)

Prerequisite: Stat 511.

Advanced statistical methodologies. Topics include repeated measures models, basic multivariate techniques, logistic regression, log-linear models.

522. Theory of Linear Models. (3)

Prerequisite: Stat 322, 442; or equivalent.

Linear hypotheses, with application to regression and design.

525. Statistical Inference. (3)

Prerequisite: Stat 322, 442; or equivalent.

Exponential families, likelihood theory, maximum likelihood estimation, likelihood ratio tests, small and large sample tests.

532. Quality Improvement for Engineering. (3)

Prerequisite: Stat 361, Math 113.

Selected topics in statistical theory, analysis of variance, simple and multiple regression, response surface design and analysis, multilevel experimental designs, blocking designs, confounding.

533. Utah Colleges Exit Poll Design. (2)

Prerequisite: concurrent enrollment in Stat 534.

Planning and executing KBYU/Utah Colleges Exit Poll.

534. Sampling. (3)

Prerequisite: Stat 334; Stat 441 or departmental consent.

Estimation in systematic, simple random, stratified, cluster, and PPS sampling and mixtures of these; ratio estimation; sample size determination and principles of sample allocation.

535. Applied Linear Models. (3)

Prerequisite: Stat 337; 441 or concurrent enrollment; or departmental consent.

Analysis of the full rank model, over-parameterized model, cell-means model, unequal subclass frequencies, missing and fused cells. Estimability issues, diagnostics.

536. Modern Regression Methods. (3)

Prerequisite: Stat 322; 336 or 511.

Weighted least squares, measurement error models, robust regression, nonlinear regression, local regression, generalized additive models, tree-structured regression.

537. Generalized Linear Models. (3)

Prerequisite: Stat 522, 535.

Generalized linear models framework, binary data, polytomous data, log-linear models.

545. Stochastic Processes. (3)

Prerequisite: Stat 441.

Review of elementary probability: expectation, characteristic functions, limit theorems. Introductory random processes: definitions and properties, covariance and spectral density, time average, stationarity, ergodicity, linear system relations, mean square estimation, Markov processes.

551. Introduction to Applied Bayesian Methods. (3)

Prerequisite: Stat 442; or Stat 441 and instructor's consent.

Basic Bayesian inference; conjugate and non-conjugate analyses; Markov Chain Monte Carlo methods; hierarchical modeling.

590. Statistical Consulting. (3)

Prerequisite: departmental consent.

Introduction to statistical consulting, oral presentations, presentation packages, written reports. Extensive applied experience in the Center for Collaborative Research and Statistical Consulting.

591R. Graduate Seminar in Statistics. (0)

595R. Special Topics in Statistics. (1-3)

Prerequisite: instructor's consent.

599R. Academic Internship: Statistics. (1-9)

Prerequisite: departmental consent.

On-the-job experience. Report required.

611. Multivariate Statistical Methods. (3)

Prerequisite: Stat 322; 337 or 512.

Inference about mean vectors and covariance matrices; multivariate analysis of variance and regression; canonical correlation; discriminant analysis; principal component analysis; factor analysis.

631. Advanced Experimental Design. (3)

Prerequisite: Stat 431, 442.

Response surface methods, optimal designs, mixture designs, designs for nonlinear models, multi-response experiments, robust designs.

635. Mixed Model Methods. (3)

Prerequisite: Stat 535 or concurrent enrollment or departmental consent.

Fixed effects, random effects, repeated measures, nonindependent data, general covariance structures, estimation methods.

690R. Advanced Special Topics. (3)

Prerequisite: instructor's consent.

695R. Readings in Statistics. (1-3)

Prerequisite: departmental consent.

698R. Master's Project. (3)

Prerequisite: departmental consent.

699R. Master's Thesis. (1-6)

Prerequisite: departmental consent.

FACULTY

BRYCE, GALE R., *Professor.* PhD, University of Kentucky, 1974. Industrial Quality Improvement.

CHRISTENSEN, HOWARD B., *Professor.* PhD, North Carolina State University, 1975. Nonparametrics; Sample Design.

CHRISTENSEN, WILLIAM F., *Assistant Professor.* PhD, Iowa State University, 1999. Multivariate Analysis; Spatial and Environmental Statistics.

COLLINGS, BRUCE J., *Professor.* PhD, University of North Carolina, 1981. Actuarial Science; Biostatistics; Combinatorics.

EGGETT, DENNIS L., *Associate Research Professor.* PhD, North Carolina State University, 1987. Linear Models; Designing and Analyzing Experiments; Statistical Computing.

FELLINGHAM, GILBERT W., *Professor.* PhD, University of Washington, 1990. Biostatistics; Combining Data; Missing and Marginal Data; Bayesian Methods.

GRIMSHAW, SCOTT D., *Associate Professor.* PhD, Texas A&M University, 1989. Statistical Computing; Industrial Quality Improvement; Modern Regression Methods.

LAWSON, JOHN S., *Associate Professor.* PhD, Polytechnic Institute of New York, 1984. Industrial Statistics; Experimental Design.

REESE, C. SHANE, *Assistant Professor.* PhD, Texas A&M University, 1999. Bayesian Methods; Reliability; Information Combination; Experimental Design.

SCHAALJE, G. BRUCE, *Professor.* PhD, North Carolina State University, 1988. Design and Analysis of Experiments; Population Modeling; Application of Statistics in Biology and Agriculture.

SCOTT, DEL T., *Professor.* PhD, Pennsylvania State University, 1977. Statistical Computing; Categorical Data Analysis; Linear Models.

TOLLEY, H. DENNIS, *Professor.* PhD, University of North Carolina, 1974. Health and Actuarial Statistics.

WHITING, DAVID G., *Assistant Professor.* PhD, Texas A&M University, 1995. Spatial Statistics; Statistical Genetics; Computational Statistics.

WOLFSON, LARA J., *Associate Professor.* PhD, Carnegie-Mellon University, 1995. Bayesian Methods; Applied Decision Theory; Expert Opinion.

TEACHER EDUCATION*Chair:* M. Winston Egan*Graduate Coordinator:* Michael O. Tunnell

205 MCKB
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THE PROGRAM OF STUDIES

The Department of Teacher Education offers graduate programs in teaching/learning and reading. Master's programs are designed to improve the art and science of teaching or to prepare educators to function as curriculum specialists. The doctoral program is designed to prepare educators to function in the following career roles: diagnostic-remedial reading specialist, developmental reading specialist, reading consultant/coordinator/supervisor, or university professor.

Three degrees are offered through the Department of Teacher Education: Teaching and Learning—MA, Teaching and Learning—MEd, and Reading—EdD.

Master's students generally complete their program in two years, whereas doctoral students average about three and a half years to complete their program.

Teaching and Learning—MA, Teaching and Learning—MEd Reading—EdD

Note: The MA, MEd, and EdD programs are under revision. Contact the department for current information.

FINANCIAL ASSISTANCE

A limited number of departmental graduate and research assistantships are available. To qualify, a student must be registered full-time. Most assignments are in supervisory positions over elementary education undergraduate majors.

RESOURCES AND OPPORTUNITIES

Computer laboratories provide students with access to the Internet. Macintosh and Windows computers in the laboratories also provide graduate students with a variety of computer software packages. All computers have access to Route Y, the university intranet, which provides services such as e-mail and class discussion groups. The Internet links permit students to search library catalogs and databases originating at the university and at countless locations around the world.

Graduate Student Office Space.

Office space is provided for graduate students who are working with faculty on research, evaluation, and development projects.

COURSE DESCRIPTIONS

Elementary Education

Note: EIED 514R is for certification purposes only and is listed in the BYU Undergraduate Catalog.

515R. Special Topics in Education. (1-3)

Two hours of 515R credit are acceptable if taught by graduate faculty and approved by the candidate's committee.

- Art in Education
- Children's Literature
- Classroom Management
- Curriculum Innovations
- Dance Drama in Education
- Early Childhood Education
- Effective Teaching
- Evaluating Student Learning
- Foundations
- Health Education
- Home-School Relations
- Human Development
- Investigating Home Schooling
- Language Arts
- Mathematics
- Microcomputers in Schools
- Multicultural Education
- Music in Education
- PE in Education
- Precision Teaching
- Program Evaluation
- Reading

- Reading in the Content Areas
- Science
- Social Science
- Writing in the Elementary School

530. Principles of Learning. (3)

Improving classroom learning through understanding underlying psychological principles and theories.

533. Written Expression in the Elementary Schools. (2)

Foundation, objectives, and strategies for teaching the writing process to elementary students, including spelling, handwriting, and integration with listening and speaking skills.

620. Organization and Administration of Reading Programs. (2)

Examining ways to organize and administer school and classroom reading programs. Examining issues relating to program types, reading assessment, grouping, grade level articulation, and supervision.

628. Curriculum Development and Supervision of Instruction. (2)

Principles and procedures in curriculum development; role of the supervisor in improving instruction and staff performance.

632. Science in Elementary Education. (2)

Teaching elementary science; current developments and trends. Planning instructional materials and procedures for a science curriculum.

633. Trends and Issues in Literacy Education. (3)

Research, literature, and trends in listening, speaking, and writing, with their implications for instruction.

635. Mathematics in Elementary Education. (2)

Issues, research, and innovations in teaching elementary school - mathematics.

636. Social Studies in Elementary Education. (2)

Domains, methods, and theories of social studies, including innovative content, e.g., law-related education, consumer education, etc.

640. Literature for Young People. (3)

Overview of (primarily) American literature for elementary school pupils; contemporary authors, trends, and classroom applications.

641. Trends and Issues in Reading. (3)

Developmental, functional, and recreational reading, with focus on research, literature, and trends in reading instruction.

642. Emergent Literacy. (2)

Needs of young readers and approaches to teaching them to read.

645. Classroom Reading Diagnosis. (3)

Formal and informal diagnostic procedures for classroom teachers to use in assessing and correcting reading deficiencies.

647. Comprehending Expository and Narrative Text. (2)

Comprehending and retaining text materials in different subject areas, including study and writing strategies for learning from school texts.

648R. Practicum in Reading. (1-4) Prerequisite: EIED 645.

Diagnosing reading difficulties, designing effective teaching strategies, and evaluating effectiveness of instruction.

650. Technology in Reading and Evaluation of Reading Materials. (1-3)

Using available software and technology for reading instruction in elementary schools and a critical analysis of print and nonprint materials.

660. Historical Foundations in Reading. (2)

In-depth study of the history of reading education, books, and reading instruction with implications for present-day reading practices.

672R. Introduction to Research Design. (1-3)

Introduction to designing, conducting, analyzing, reporting, and evaluating research studies in education.

676. Research in Reading. (2)

Prerequisite: EEd 641.

Research literature in reading, both classical and current, emphasizing application of findings to educational practice.

680R. Professional Internship. (1-6)

Professional work experience in area of specialization under direction of a faculty member.

693R. Directed Individual Study. (1-4)**695R. Independent Research.** (1-6)

Conceptualizing, designing, implementing, and evaluating a student-initiated project in a school classroom for curriculum improvement.

696R. Professional Education Project. (1-6)

Developing, observing, gathering, interpreting, and reporting data derived from a project in relation to the student's professional assignment.

699R. Master's Thesis. (1-6)

Formal report and defense of substantive research, evaluation, or curriculum project designed to make an original contribution to knowledge in the field.

731. Principles of Curriculum Development. (2)

Prerequisite: EEd 628 or instructor's consent.

Curriculum planning and design and its implementation in schools.

734. Literacy Seminar. (2)

Significant research and publications in language arts and their implications for classroom practice.

740. Theoretical Models of Reading. (2)

In-depth study of the theoretical models of the reading process. Statistical, psychological, literary, linguistic, and motivational models analyzed and critiqued.

741. Psychology and Physiology of Reading. (2)

Physiology of the eye, ear, and brain as these relate to the reading act and potential reading disabilities; psychophysical measurement methods.

742. Teaching Reading Vocabulary and Comprehension. (2)

Theories and research studies of vocabulary acquisition and reading comprehension as they relate to effective teaching.

743. Oral Language Acquisition: Parallels in Reading and Writing Development. (2)

Developmental reading stage theories, writing development theories, and invented spelling research; how these relate to oral language acquisition.

780R. Professional Internship. (1-8)

Professional work experience in area of specialization under direction of a faculty member.

793R. Directed Individual Study. (1-4)**795R. Independent Research.** (1-6)

Conceptualizing, designing, implementing, and evaluating student-initiated research.

799R. Dissertation. (1-12)

Formal report and defense of substantive research, evaluation, or curriculum project designed to make an original contribution to knowledge in the field.

Secondary Education**505. Adolescent Literacy.** (2)

Prerequisite: ScEd 276R or 375; or equivalents.

Issues, theories, and practices of literacy instruction for adolescent learners, including methods to help students read and write in the content areas.

515R. Special Topics in Education. (1-3)

- Learning and Teaching
- Science Education
- Teaching Reading in the Content Area

648. Advanced Adolescent Literacy. (2)

Prerequisite: ScEd 505 or instructor's consent.

Current research, issues, and trends in adolescent literacy, with implications for instruction in secondary schools.

FACULTY

BIRRELL, JAMES R., *Associate Professor*. EdD, University of Nevada, Las Vegas, 1993. Qualitative Research; Multicultural Education.

BULLOUGH, ROBERT V., JR., *Professor*. PhD, Ohio State University, 1976. Teacher Education.

CHILCOAT, GEORGE (SKIP), *Professor*. EdD, Arizona State University, 1983. Social Studies Education.

DRAPER, RONI JO, *Assistant Professor*. PhD, University of Nevada, Reno, 2000. Secondary Literacy Education.

EARLE, RODNEY S., *Professor*. PhD, Indiana University, 1981. Teacher Planning Processes; Instructional Design; Assessment.

EGAN, M. WINSTON, *Professor*. PhD, University of Florida, 1974. Behavior Disorders; Teacher Education; Distance Education.

ELDRIDGE, J. LLOYD, *Professor*. EdD, University of Utah, 1970. Reading; Language Arts; Discipline; Motivation.

ERICKSON, LYNNETTE B., *Associate Professor*. PhD, Arizona State University, 1996. Social Studies Education; Teacher Education.

HALL, KENDRA, *Assistant Professor*. PhD, Columbia University, 2002. Early Childhood Education.

JACOBS, JAMES S., *Professor*. EdD, University of Georgia, 1978. Children's Literature.

MONROE, EULA E., *Professor*. EdD, George Peabody College for Teachers of Vanderbilt University, 1980. Mathematics Education; Curriculum and Instruction.

MORRISON, TIMOTHY G., *Associate Professor*. PhD, University of Illinois, 1986. Reading; Language Arts; Children's Literature.

PINNEGAR, STEFINEE E., *Associate Professor*. PhD, University of Arizona, 1989. Teacher Education.

RIDLON, CANDICE, *Assistant Professor*.
PhD, Florida State University,
1999. Mathematics Education.

SMITH, LEIGH, *Assistant Professor*.
PhD, University of Utah, 2002.
Science Education.

TEEMANT, ANNELA, *Assistant Professor*.
PhD, Ohio State University, 1997.
Foreign Language and ESL
Education; Testing and
Evaluation; Quantitative
Statistics.

TOLMAN, MARVIN N., *Professor*. EdD,
Utah State University, 1975.
Science Education.

TUNNELL, MICHAEL O., *Professor*.
EdD, Brigham Young University,
1986. Children's Literature.

WENTWORTH, NANCY McMILLAN,
Associate Professor. PhD,
University of Utah, 1993.
Technology in Education;
Mathematics Curriculum and
Instruction; Teacher Education.

YOUNG, JANET R., *Assistant Professor*.
PhD, University of Oklahoma,
1996. Reading Education.

SCHOOL OF TECHNOLOGY

Director: Thomas L. Erikson
Graduate Coordinator: Kevin Burr,
(801) 422-2023

265 CTB
Provo, UT 84602-4211
(801) 422-7433

THE PROGRAM OF STUDIES

The master of science in technology degree is designed to develop leaders to respond to the needs of a technology-based society for advanced technical, managerial, and educational personnel. Graduate level leadership and technology application capabilities are developed through rigorous courses and in-depth research and development experiences. The MS in technology provides opportunities for students to engage in applied technical research that adds to the knowledge of relevant practice or solves problems that arise in the workplace.

One degree is offered through the School of Technology: Technology—MS.

Technology—MS

The School of Technology, an academic unit in the College of Engineering and Technology, provides a master of science degree with specialization in Construction Management, Information Technology, Manufacturing Systems, or Technology Teacher Education. Twenty-two faculty professionals having diverse educational and experiential backgrounds provide strong research expertise and student mentoring. The faculty are well-published, belong to professional societies, and are involved in developing and commercializing recognized software and hardware products used throughout the world.

Admission and Entry.

- Semesters of entry and application deadlines: fall, spring, summer, February 15 (U.S. and international);

winter, September 15 (U.S. and international).

- Application requirements: 3.0 or higher GPA. Consult graduate coordinator for additional information.
- Entrance examinations: GRE general test. For students considering construction management (CM) or the integrated product development program (IPD), the GMAT test may be substituted for the GRE. Minimum GRE score of 550 in mathematics and verbal sections and 4.5 on the writing section. For all international applicants whose native language is not English, a minimum TOEFL score of 570 is also required.
- Prerequisite: baccalaureate degree in a related field with program approval. Those students entering this program from related fields may be required to take additional prerequisite courses.

Requirements for Degree.

The technology MS degree must be completed within three years.

- Credit hours: 24 minimum approved course hours plus 6 thesis hours (Tech 699R).
- Required courses: Tech 601, 638, 690, 691, 694, 699R.
- Specialization: minimum 12 hours from approved courses in the area of study. List of proposed courses required.
- Examination: comprehensive exam at end of course work and oral defense of thesis.

Construction Management

Advisor: Jay Newitt

This specialization prepares graduates to be successful leaders in upper-level management positions within an increasingly demanding construction profession. Graduate curricula is designed to increase both the breadth and depth of knowledge in the management of construction projects and enterprises. With advisor approval, students are encouraged to take graduate courses in business management and civil engineering and to prepare for potential

careers as faculty in construction management.

- Required courses: CM 620, 640, 650, 670.
- Electives: 3 credit hours.

Information Technology

Advisor: Barry Lunt

Those qualifying for this specialization prepare for information technology (IT) leadership positions in an organization of their choice. The curriculum addresses the many applications and developments of IT, focusing on those in science, engineering, and technology. The MS degree is awarded to students who have mastered a professional level of education in core and related areas of information technologies.

- Required courses: 3 hours from the following: IT 529, 540, 548, 650.
- Approved electives: 6 credit hours.

Manufacturing Systems

Advisor: Mike Miles

Students who have graduated in manufacturing systems technology or related technical areas will find that this specialization is an opportunity to prepare for a career in a rapidly growing field. Increased international focus on productivity, quality, and automation has thrust the most advanced concepts of technology and management directly into the manufacturing arena. The critical need for integrating and applying these concepts into manufacturing systems is central to this specialization.

- Required courses: 15 credit hours from the following list, based upon committee approval: Mfg 531, 532, 533, 555, 572, 574, 580, 655, 674, 675.

Technology Teacher Education

Advisor: Steve Shumway

The technology teacher education specialization helps students who have graduated in technology teacher education or related areas to be more effective leaders. The opportunity will be theirs to achieve knowledge and skills for leadership

in teaching, supervising, and managing in schools or industry. Through a research-oriented thesis, students will develop writing and research abilities related to technology education.

- Required courses: Stat 510, TTE 610, 625.
- Approved electives: 8 hours, based upon committee assignment.

FINANCIAL ASSISTANCE

The School of Technology offers a limited number of scholarships. Application for financial aid is made through the program's graduate coordinator.

RESOURCES AND OPPORTUNITIES

Nationally recognized instructional laboratories are available to provide students with the most current concepts, curriculum, software, equipment, and laboratory instructional/physical organization.

COURSE DESCRIPTIONS

Construction Management

600. Trends and Issues in Managing Construction. (3)

Current political, regulatory, technological, environmental, and leadership trends and issues.

610. Integrating Construction Software. (3)

Integrating information generated through state-of-the-art hardware and software using scheduling, cost control, estimating, spreadsheets, databases, and word processing to improve the construction process.

620. Innovative Construction Management Controls. (3)

Innovative estimating, bidding, and scheduling techniques; integrating the estimate and schedule to create a system for managing and controlling costs and time.

640. Construction Productivity Improvement. (3)

Improving construction productivity and quality through management issues and field issues. Overall organizational and management strategies; techniques for observation, analysis, and problem solving to improve on-site productivity.

650. Construction Company Development and Strategic Planning. (3)

Advanced topics in construction company operations and management, including strategic planning processes, company growth and development, systems management, and performance analyses.

695R. Special Topics in Construction Management. (3)

Based on needs, interest, and significance, topics important to leaders and managers in the construction industry.

Information Technology

515R. Special Topics in Information Technology. (1-3)

Study courses offered on demand.

529. Advanced Networking. (3)

Prerequisite: IT 344, 347; or equivalents.

Analysis, selection, configuration, monitoring, and management of computer network equipment. Emphasizes SNMP-based monitoring and control in the process of fault isolation and root cause analysis.

531. Encryption and Compression. (3)

Prerequisite: CS 235, Math 112; or equivalents.

Analyzing theory, algorithms, and implementations for digital data encryption and compression; common standards scrutinized. Lab emphasizing implementation.

548. Mechatronics. (3)

Prerequisite: IT 444 or instructor's consent.

Synergistic application of mechanical devices, electronic controls, and system principles in designing products and manufacturing processes. Advanced applications of electronic instrumentation, control, and automation in manufacturing systems.

650. Computer I/O and Storage Devices. (3)

Prerequisite: IT 250, 444; or equivalents.

Technology of devices for computer input and output, including video, audio, speech recognition, and authentication; technology for computer storage, including solid-state, magnetic, and optical; RAID.

Manufacturing Engineering Technology

531. Advanced Computer-Aided Manufacturing Programming. (3)

Prerequisite: previous introductory computer-aided manufacturing programming; senior or graduate status or instructor's consent.

CAD/CAM programming techniques and requirements for manufacturing components on computer numerical-control machine tools, emphasizing CAM programming, postprocessors, and CAM software evaluation.

532. Manufacturing Systems. (3)

Prerequisite: Mfg 480 or instructor's consent.

Analyzing lean manufacturing systems. Numerous examples and case studies from industry demonstrating principles of lean production, inventory management, and lean distribution. Project with a local company to gain confidence with these principles in an industrial setting.

533. Manufacturing Information Systems. (3)

Prerequisite: Mfg 480 or instructor's consent.

Application and integration of software and information technologies in the planning, executing, and monitoring of production operations.

555. Composite Materials and Processes. (3)

Prerequisite: graduate standing or instructor's consent.

Structure, processing, properties, and uses of composite materials, including various manufacturing methods and the relationship between properties and fabrication.

572. Design for Manufacturing. (3)

Prerequisite: graduate standing or instructor's consent.

Introduction to design evaluation techniques, including design for mechanical assembly, printed circuit board assembly, plastic injection molding, machining, and sheet metal fabrication.

574. Advanced Tool Design. (3)

Prerequisite: instructor's consent.

Advanced design of net-shape products utilizing CAD and CAE methods. Plastic injection mold design and construction. Rapid prototyping and injection molding project.

580. Manufacturing Simulation. (3)

Prerequisite: instructor's consent.

Design and optimization of manufacturing systems using simulation. Simulation languages and modeling methodology.

655. Polymer Processing. (3)

Prerequisite: MeEn 312, Mfg 355, or instructor's consent.

Rheology and transport phenomena involving polymeric fluids, including an analysis of extrusion, calendaring, die forming, mixing, compression and injection molding, molding of reacting polymers, filament winding, and pultrusion.

674. Production System Design. (3)

Prerequisite: Mfg 533 or instructor's consent.

Designing manufacturing systems for competitive advantage. Factory layout, simulation, and design and tooling design. Integration of manufacturing design into product development process.

675. (Mfg-MeEn 685) Advanced Manufacturing Strategies for Product Development. (3)

Prerequisite: Mfg 232 or equivalent.

Theoretical and experimental study of manufacturing methods such as machining, forming, casting, welding, etc.

Technology

601. Research and Development in Technology. (3)

Research tools as aids in decision making; strategies, literature, logic, survey techniques, research design, statistics, computers. Preparing proposals for research papers and thesis research; organizing first three thesis chapters.

638. Technology Leadership. (3)

Strategic planning and policy development. Theoretical and practical leadership aspects of conceptual and implementation processes. Articulation and team building among various organizations. Ethics and conflict resolution. Developing and implementing solutions to special problems; advanced skills/concepts in traditional and emerging technology areas.

690. Graduate Seminar, Part 1. (0.5)

Prerequisite: graduate standing.

Success strategies in graduate programs. Identifying appropriate direction of research and study.

691. Graduate Seminar, Part 2. (0.5)

Prerequisite: graduate standing.

Thesis preparation.

694. Readings and Conference. (2)

Reading, interpretation, and application of specified topics as possible base for review of literature for thesis research projects.

695R. Technology Special Topics. (1-9)

Prerequisite: instructor's and departmental consent.

Topics arranged in consultation with instructor.

696R. Advanced Technological Processes. (1-3)

Developing and implementing solutions to special problems; advanced skills/concepts in traditional and emerging technology areas.

699R. Master's Thesis. (1-9)

Prerequisite: departmental consent.

Technology Teacher Education**550. Distance Learning. (2)**

Developing distance learning environments with multimedia, streaming media, course management systems, and other digital media founded on the principles of "how people learn."

593R. Workshop in Applied Technology Education. (1-2)

Reviewing and participating in current industrial and technological advances. Maximum of 2 credit hours can be applied to MS program. Fee.

610. History and Philosophy of Technology Education. (2)

Historical and philosophical basis of today's technology programs.

625. Teaching and Learning in Technology Education. (2)

Identifying, developing, and implementing instructional strategies unique to technology education.

630. Adult Applied Technology Programs. (2)

Identifying, developing, and implementing relevant applied technology training programs.

635. Facility Design for Applied Technology Programs. (2)

Developing instructional facilities and educational specifications for vocational and technology laboratories.

675. Curriculum Development in Technology Education. (3)

Prerequisite: graduate standing.

FACULTY

BAILEY, MICHAEL G., *Assistant Professor*. PhD, Florida Institute of Technology, 2000. Parallel Processing and Nonlinear Systems.

BURR, KEVIN L., *Associate Professor*. EdD, Oklahoma State University, 1997. Construction Management / Teacher Education.

CAMPBELL, JEFFREY L., *Assistant Professor*. PhD, University of Idaho, 1999. Facilities Management, Strategic Planning and Construction Marketing.

CARTER, PERRY W., II, *Assistant Professor*. PhD, University of Massachusetts, 1988. Automatic Assembly.

CHRISTENSEN, KIP W., *Professor*. PhD, Colorado State University, 1991. Teacher Education.

CHRISTOFFERSON, JAY P., *Assistant Professor*. PhD, Colorado State University, 1996. Computerized Systems in Construction Management.

EKSTROM, JOSEPH J., *Associate Professor*. PhD, Brigham Young University, 1991. Network Management, Switching, Routing, Software/Hardware Systems Development and Modeling.

EREKSON, THOMAS L., *Professor*. EdD, University of Illinois, 1979. Technology and Society; Leadership Development.

GONZALES, RONALD E., *Professor*. PhD, Purdue University, 1982. Teacher Education.

HARRELL, CHARLES R., *Associate Professor*. PhD, University of Denmark, 1988. Simulation.

HAWKS, VAL D., *Associate Professor*. MS, Lehigh University, 1986. CIM Database Management Systems.

HELPS, C. RICHARD G., *Associate Professor*. Msc (Eng.) Witwatersrand University, Johannesburg, South Africa, 1986. Real-Time; Process Control; Automation Systems.

HUTCHINGS, MARK D., *Assistant Professor*. PhD, Texas A&M, 2002. construction Company Management; Legal Aspects of Construction; Real Estate, Investment, and Development.

KOHKONEN, KENT E., *Associate Professor*. MS, Brigham Young University, 1976. CNC Software Development; Processing Languages; Parametric Programming.

LUNT, BARRY M., *Associate Professor*. PhD, Utah State University, 1993. Electronic Physical Design.

MILES, MICHAEL P., *Assistant Professor*. PhD, Ecole des Mines de Paris, 1995. Lean Manufacturing, Materials Science, Finite Element Analysis.

MILLER, KEVIN R., *Assistant Professor*. PhD, Arizona State University, 2001. Construction Estimating with Electronic Documents.

SHUMWAY, STEVEN L., *Assistant Professor*. PhD, Utah State University, 1999. Student Learning and Motivation Theory.

SKAGGS, PAUL T., *Associate Professor*. MFA, Rochester Institute of Technology, 2002. Interior Design.

STRONG, A. BRENT, *Professor*. PhD, University of Utah, 1971. Composites; Plasma Surface Treatments; Plastics.

THEATRE AND MEDIA ARTS

Chair and Graduate Coordinator:
Bob Nelson

D-581 HFAC
Provo, UT 84602-6405
(801) 422-3406
robert_nelson@byu.edu

THE PROGRAM OF STUDIES

The Department of Theatre and Media Arts supports the university's synthesis of religious, humanistic, artistic, and professional education. The department serves people who love theatre and media arts and who believe in the value of the arts in education.

Recognizing the need to enrich people's lives through theatre and media arts, the department seeks excellence in the study and practice of these arts by stressing rigorous scholarship, high artistic standards, and Christian behavior. The department (1) educates broadly in the best liberal arts tradition; (2) develops disciplined scholars, artists, and educators; and (3) prepares articulate, thinking, caring individuals who will effectively serve their professions, their communities, and their church.

We believe in the power of the arts and in the capacity of theatre and media arts to enlighten, humanize, civilize, and edify. The desire of human beings through the ages to create art and to pursue beauty for its own sake becomes, in the light of the gospel, powerful evidence of people's divine nature and parentage. Such a spiritual assurance of the eternal validity and importance of the arts brings, in turn, greater meaning and satisfaction to the study of theatre and media arts at BYU.

Three degrees are offered through the Department of Theatre and Media Arts: Theatre and Media Arts—MA, Production Design—MFA, and Theatre and Media Arts—PhD.

Theatre and Media Arts—MA

Areas of emphasis: Theatre or Media Arts History, Theory, Criticism; Theatre for Young Audiences.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international); summer, December 31 (international) and February 1 (U.S.).
- Application requirements: entrance examination is GRE general test (scores subject to review); samples of written work demonstrating capacity to function at acceptable graduate student entry level.
- Prerequisite: acceptable undergraduate background in theatre arts or media arts.

Requirements for Degree.

- Credit hours (32): minimum 26 course work hours plus 6 thesis hours (TMA 699R) (minimum 20 hours must be in theatre/media arts or theatre/media arts-related courses).
- Required courses: TMA 690; TMA 600, 601, 602, 700R; 3 hours of history, theory, or criticism in area other than emphasis (theatre or media arts); 8 hours of electives, selected in consultation with advisory committee.
- Minor (optional): any approved minor.
- Production: at least one significant production experience, determined in consultation with advisory committee (evaluation will occur immediately after the production).
- Thesis: thesis must make a genuine contribution to body of knowledge and meet highest academic standards (departmental style guides are MLA and Turabian). Three kinds of thesis research will be accepted: (A) scholarly analysis of theatre or media arts history, theory, or criticism; (B) research and strong creative achievement in theatre or media arts; or (C) measurement studies.
- Examinations: (A) comprehensive written examination; (B) comprehensive oral examination; (C) oral defense of thesis.

- Theatre for Young Audiences students will, in addition to the above, complete the following: (A) TMA 352 and 452 (or a demonstration of comparable course work or experience) and TMA 522R and 772; (B) at least one approved significant teaching or workshop-leading experience demonstrating or teaching principles of theatre for young people; (C) a demonstration of writing competence by submitting for publication a scholarly article or reviews of at least four published plays; and (D) an approved internship with an organization doing performance, teaching, or research work with young people.

Production Design—MFA

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international), odd-numbered years.
- Application requirements: entrance examination is GRE general test (scores subject to review); international students, TOEFL 550; resumé; design placement examination of portfolio review, as determined by appropriate area committee; samples of written work demonstrating capacity to function at acceptable graduate student entry level; interview with area committee.
- Prerequisite: TMA 112, 123, 201, 202, 236, 262, 265A,B, 267, 362, 395, 396, 462; VASu 108, 422R; or equivalents.

Requirements for Degree.

- Credit hours: minimum 60 course work hours, including 6 project hours (TMA 698R).
- Required courses: TMA 600, 601, 602, 650R, 651, 652R, 653, 654R, 655R, 656R, 657R, 658R, 659R, 690, 696R.
- Electives (3 hours selected in consultation with advisory committee).
- Off-campus internship (TMA 599R).
- Project (minimum 6 hours; TMA 698R): costume design for and supervision of at least one full-length production (must be report-

ed in thesis form and accepted by area committee).

- **Examinations:** (A) comprehensive written examination; (B) comprehensive oral examination; and (C) oral defense of project.

Theatre and Media Arts—PhD

Areas of emphasis: Theatre or Media Arts History, Theory, Criticism; Theatre for Young Audiences.

Note: The department is not admitting PhD students for the 2004–2005 academic year. Requirements and course work are under revision. See the department for further details.

FINANCIAL ASSISTANCE

The following financial support is available through the Department of Theatre and Media Arts:

Assistantships. Graduate students may work in many areas, including performance, production, research, and teaching.

Applicants must have appropriate background and experience to be considered. Assistantships range up to half-time; pay is based on applicant's experience, year in school, and the type of assistantship.

Internships. The department occasionally offers a quarter-time internship.

Supplemental Tuition Awards. A number of supplemental tuition awards are offered by the department during all semesters and terms. The size of these awards is determined by the applicants' qualifications and the availability of departmental funds.

RESOURCES AND OPPORTUNITIES

The Harris Fine Arts Center houses the Department of Theatre and Media Arts, five theatres, two concert halls, rehearsal rooms, three media arts labs, two television sound stages, a PBS affiliate, and a 24-hour FM station. These facilities, as well as a feature-film studio near campus, serve as laboratories for students.

Graduate students also may perform individually and with some of the many talented groups on campus.

For a more detailed description of the graduate program requirements, send for a copy of the department's bulletin.

COURSE DESCRIPTIONS

515R. Workshop 3: Special Projects. (1–6)

Prerequisite: major status; TMA 112, 114; instructor's consent.

Advanced special projects in theatre or media arts.

516R. Theatre and Media Arts Instruction. (1–3)

Prerequisite: major status; TMA 112, 114; instructor's consent.

Developing teaching methods and techniques for instruction in the theatre and media arts classroom.

536R. Directing Workshop. (3)

Prerequisite: major status; TMA foundation and core courses; TMA 236, 336, 436. By proposal/application only.

Advanced experience in production: directing.

550R. Theatre for Young Audiences. (3)

Prerequisite: major status or instructor's consent; TMA 112, 114.

Theories, techniques, and experience in creating formal drama for child and youth audiences.

551R. Playwriting 4. (3)

Prerequisite: major status or instructor's consent; TMA 112, 114, 451, or equivalent.

Workshop course designed to assist more advanced students in furthering their playwriting skills by writing or rewriting a play.

552. Improvisation. (3)

Prerequisite: major status or instructor's consent; TMA 112, 114, 123.

Informal or improvised dramatic techniques with children, adolescents, and/or adults.

557. Storytelling. (2)

Prerequisite: major status or instructor's consent.

Theories, techniques, and practice in the art of telling spellbinding stories.

562. Costume Design 3. (2)

Prerequisite: major status; TMA 112, 114, 462.

Advanced conceptual approaches to costume design. Strong background in costuming required. Designers for main-season productions will be selected from students enrolled in this course.

563. Scenic Design 3. (2)

Prerequisite: major status; TMA 112, 114, 463.

Advanced conceptual scenic design. Assumes strong background in scenography. Designers for main-season productions may be selected from students enrolled in this course.

564. Lighting Design 3. (2)

Prerequisite: major status; TMA 112, 114, 464, or equivalent.

Advanced conceptual lighting projects. Assumes strong background in lighting. Designers for main-season productions may be selected from students enrolled in this course.

565R. Specialty Costumes. (2)

Prerequisite: major status; TMA 114, 265A, 265B, or equivalent.

Advanced skills in millinery, dyes, footwear, and allied project areas.

567R. Makeup Project. (1–6)

Prerequisite: TMA 267, instructor's consent.

Practicum in makeup design and application. Main-season production designers and teaching assistants will be enrolled in this course.

568. Sound. (2)

Prerequisite: major status; TMA foundation courses.

Basics in sound design and reinforcement. Work on main-season productions.

569R. Design for Production. (1–4)

Prerequisite: major status; TMA 112, 114, or equivalent; instructor's consent.

Practical experience working with main-season designers; related topics.

599R. Academic Internship. (1–9)

Prerequisite: major status; TMA 112, 114, or equivalent.

Off-campus experience or internship in theatre or media arts.

600. Theatre History and Theory 1: Greek through Renaissance. (3)

Prerequisite: TMA 201, 202; or equivalents.

Theatre history sites—Greek through Renaissance—emphasizing existing archives, representative texts and cultural documents, and contemporary criticism.

601. Theatre History and Theory 2: Elizabethan through Eighteenth Century. (3)

Prerequisite: TMA 201, 202; or equivalents.

Theatre history sites—Elizabethan through eighteenth century—emphasizing existing archives, representative texts and cultural documents, and contemporary criticism.

602. Theatre History and Theory 3: Nineteenth and Twentieth Centuries. (3)

Prerequisite: TMA 201, 202; or equivalents.

Theatre history sites—nineteenth through twentieth centuries—emphasizing existing archives, representative texts and cultural documents, and contemporary criticism.

650R. Computer Graphics for Stage and Screen. (3)

Prerequisite: Acceptance to MFA costume program; instructor's consent.

Instruction in current computer software related to theatre and media arts design, including several basic graphics packages; between-program projects to enhance skills; assigned projects for current production.

651. Costume Graphics. (3)

Prerequisite: instructor's consent.

Figure-drawing approaches, clothing techniques, and various mediums applied to costume rendering, layout, and presentation.

652R. Costume Approaches. (3)

Prerequisite: instructor's consent.

Alternating studies in (1) costume design reflecting directorial concepts and (2) specific applications for dance, opera, spectaculars, puppetry, and avant-garde productions.

653. Styles. (3)

Prerequisite: instructor's consent.

Guided research of visual design for major movements of theatre history. Applied projects.

654R. Period Foundations. (3)

Prerequisite: instructor's consent.

Costume patterning and construction techniques for under structures. One major fashion era covered in each course rotation.

655R. Women's Period Fashion. (3)

Prerequisite: instructor's consent.

Costume patterning and construction techniques for women's over garments. One major fashion era covered in each course rotation.

656R. Men's Period Fashions. (3)

Prerequisite: instructor's consent.

Costume patterning and construction techniques for men's over garments. One major fashion era covered in each course rotation.

657R. Costume Topics. (3)

Prerequisite: instructor's consent.

Rotating area studies emphasizing costume history, shop management, and tailoring techniques.

658R. Project: Assistant Design. (1–4)

Prerequisite: instructor's consent.

Applied projects in assisting costume design for realized productions in theatre and media arts.

659R. Project: Design. (1–6)

Prerequisite: instructor's consent.

Applied projects in costume design for realized productions in theatre and media arts.

660R. Advanced Voice and Interpretation. (3)

Prerequisite: TMA 121, 122, 123, 355; or equivalents.

Continuation of TMA 355. Polishing vocal and interpretative skills through performances.

668R. Special Studies in Theatre or Media Arts. (1–3)

Supervised research in selected historical, theoretical, or critical problems.

670. Advanced Set Construction. (3)

Prerequisite: TMA 266 or equivalent.

Special problems in scenery construction and rigging.

671R. Advanced Directing. (3)

Prerequisite: TMA 201, 202, 235, 335; or equivalents.

Theories and techniques of directing for the stage through directing projects for public presentation.

674R. Projects in Theatre or Media Arts. (1–4)

Supervised applied theory in playwriting/screenwriting, directing, acting, design, criticism, stagecraft.

680R. Advanced Media Arts Production. (5)

Prerequisite: TMA 244, 285, 341, 385, 387; or equivalents; instructor's consent.

Advanced 16-mm filmmaking.

685R. Screenwriting 4. (3)

Prerequisite: TMA 387, 441R, and instructor's consent.

Advanced practical experience in screenwriting.

689. Motion Picture History. (3)

Worldwide survey of advanced motion picture history.

690. Introduction to Graduate Studies in Theatre and Media Arts. (3)

Introductory seminar required of all graduate students during first semester or term that class is offered.

696R. Design Seminar. (3)

Costume, scenic, and lighting design in relation to collaborative support of production concept and approach. Previous design experience not required.

697R. Seminar and Production: Special Theatre Forms. (2–3)

Prerequisite: instructor's consent.

Theory and practice directing in special forms: readers' theatre, avant-garde, etc.

698R. Master's Project. (1–6)**699R. Master's Thesis.** (1–9)**700R. Master Seminar.** (3)

Selected topics.

772R. Seminar in Child Drama. (3)

Prerequisite: TMA 550R, 552; or instructor's consent.

Advanced theory and research in drama and theatre with and for children.

788R. Symposium for Filmmakers. (3)

Prerequisite: TMA 285, 387; 680R or concurrent registration; instructor's consent.

Symposium to stimulate and enhance perception and understanding of motion picture industry and its historical, contemporary, and social context.

797R. Research. (Arr.)**799R. Doctoral Dissertation.** (1–18)**FACULTY**

CHABRIES, APRIL, *Assistant Professor*. MFA, Utah State University, 1999. Multimedia.

DUNCAN, DEAN, *Associate Professor*. PhD, University of Glasgow, Scotland, 1999. Film History, Theory, Criticism.

FARAHNAKIAN, MARY, *Associate Professor*. PhD, Brigham Young University, 1977. Costume Design; Costume History.

FIELDING, ERIC, *Professor*. MFA, Goodman School of Drama, Art Institute of Chicago, 1976. Set Design; Lighting Design; Theatre Management.

GALE, LARRIE, *Associate Professor*. PhD, University of Utah, 1973. Interactive Media.

HARROP-PURSER, LAURIE, *Assistant Professor*. MFA, National Theatre Conservatory, 1990. Acting.

HEINER, BARTA, *Associate Professor*. MFA, American Conservatory Theatre, 1977. Acting; Directing.

JENSEN, AMY PETERSEN, *Assistant Professor*. PhD, Northern Illinois University, 2003. Media Education; Secondary Education.

JONES, MEGAN SANBORN, *Assistant Professor*. PhD, University of Minnesota, 2003. Theatre History, Theory.

LARSEN, DARL, *Assistant Professor*. PhD, Northern Illinois University, 2000. Film History, Theory, Criticism.

MORGAN, DAVID E., *Associate Professor*. MFA, National Theatre Conservatory, 1990. Acting; Directing.

NELSON, GEORGE D., *Associate Professor*. MFA, University of Washington, 1979. Child Drama; Secondary Education.

NELSON, BOB, *Associate Professor*. PhD, University of Utah, 1976. Acting; Directing; Theatre History, Theory.

SAMUELSEN, ERIC, *Associate Professor*. PhD, Indiana University, 1991. Creative Writing; Theatre History, Theory, Criticism.

SCANLON, RORY R., *Professor*. MFA, University of Illinois, 1984. Set and Costume Design; Costume History; Lighting Design.

SORENSEN, RODGER, *Associate Professor*. PhD, University of Texas at Dallas, 1999. Directing.

SWENSON, JANET L., *Professor*. MFA, University of Utah, 1992. Costume Design; Costume History; Makeup.

SWENSON, SHARON, *Assistant Professor*. PhD, University of Utah, 1993. Film History, Theory, Criticism.

THRELFALL, TIMOTHY A., *Associate Professor*. MFA, University of Washington, 1987. Acting, Music Dance Theatre.

VISUAL ARTS

Chair: John Telford

Graduate Coordinator: Linda Sullivan

C-502 HFAC
Provo, UT 84602-6402
(801) 422-4429

THE PROGRAM OF STUDIES

Three postgraduate degrees are offered in the Department of Visual Arts: Art Education—MA, Art History and Curatorial Studies—MA, and Studio Art—MFA. Each requires practicing the component disciplines of art, as well as acquiring certain skills, knowledge, and understandings.

These three strong graduate programs examine and promote the study, creation, and teaching of the visual arts, historically and from contemporary perspectives. Faculty in each area are recognized leading practitioners as well as students of the theoretical, philosophical, and professional issues of their respective academic specialties. The academic thrust of graduate studies in the Department of Visual Arts provides a rich blend of the theoretical and the practical for a balanced understanding of art. High standards for study and practice in each degree program promote the high levels of professional practice and accomplishment expected of and achieved by our graduates.

The average number of students in each program and the duration of each program is as follows:

- Art Education: twelve students as a cohort group in program; two years to completion.
- Art History: sixteen students in program; three years to completion.
- Studio Art: fourteen students in program; two years to completion.

Art Education—MA

The MA in art education is intended for those who plan to pursue a PhD or EdD in art education. It is also for

those teaching and making art who desire intensive curriculum development and additional content and skills in the disciplines of a comprehensive art program.

Admission and Entry.

- Application deadlines: September 15, 2004 (U.S. and international). The cohort program begins winter semester 2005.
- Application requirements: slide portfolio of applicant's recent work; one or two written papers demonstrating applicant's writing skills; minimum 3.0 GPA for last 60 hours.
- Prerequisite: baccalaureate degree in art education from an accredited institution (applicants holding other teaching degrees may be considered if art deficiencies are completed to the satisfaction of the Art Education Admissions Committee); certification to teach in public schools at the elementary or secondary level; minimum two years of teaching experience.

Requirements for Degree.

- Credit hours (36 hours): minimum 30 course work hours plus 6 thesis hours. Course work hours primarily from 500- and 600-level courses (no more than 9 hours of 300- or 400-level courses may apply).
- Course requirements: 15 hours of core art education seminar (VAEdu 678R); 12 hours of VAEdu 578R (6 hours of digital art; 6 hours of studio art); 3 hours of art history courses; 6 thesis hours (VAEdu 699R).
- Select graduate committee and submit study list no later than second week of second semester.
- Examinations: comprehensive examination and oral defense of thesis.

Art History and Curatorial Studies—MA

The MA in art history and curatorial studies is designed to prepare students for advanced graduate study at the PhD level and to provide a foundation for students desiring a career in a museum or art gallery.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international).
- Application requirements: minimum 3.3 GPA for last 60 hours.
- Prerequisite: baccalaureate degree in art history or related field, including at least 18 credit hours in art history above the introductory survey levels.
- Entrance examination: GRE.

Requirements for Degree.

- Credit hours (30 hours): minimum 24 course work hours plus 6 thesis hours (ArHC 699R). No more than 6 credit hours may be taken outside the Department of Visual Arts's art history area.
- Required courses: ArHC 500, 505, 510, and courses selected in consultation with the graduate coordinator and graduate committee chair (the MA program is designed to allow maximum exposure to the various areas of art history and curatorial studies).
- Language requirement: reading knowledge of at least one foreign language, preferably French, German, or Italian; similar competency required in a second language by end of program.
- Select a graduate committee based on your major and minor areas during first semester of studies.
- Select major and minor areas of emphasis: ancient, early Christian/Byzantine, medieval, Renaissance, baroque, eighteenth-century, nineteenth-century, American, European modernism, contemporary, curatorial studies.
- Examinations: (A) three one-hour written exams corresponding to (1) the major area, (2) the minor area, and, (3) the thesis topic; (B) oral defense of thesis.
- Thesis.

Studio Art—MFA

A terminal degree, the MFA in art is dedicated to generating artists with significant skills and understandings that can influence the discipline. The MFA has four areas of specialization: Ceramics, Painting-Drawing, Printmaking-Drawing, and

Sculpture. Each area requires 60 credit hours. A minor in art history may be earned by completing an additional 9 hours with the approval of the art history area head.

Admission and Entry.

- Semesters of entry and application deadlines: fall, February 1 (U.S. and international) **Note:** The number of resident MFA candidates is restricted by availability of individual studio space.
- Application requirements: minimum 3.0 GPA for last 60 hours; complete university and department graduate application forms; submit a twenty-slide portfolio of applicant's work.
- Prerequisite: baccalaureate degree in art or equivalent with minimum 20 hours of upper-division course work and 12 hours of art history.

Students will be required to enroll in a minimum of 9 credit hours each semester to maintain their status within the program.

Only credit earning 3.0 or better can be applied toward graduation. Students who fall below this standard will be placed on academic probation. If they fall below this average in any semester following, they will be terminated from the program.

Requirements for Degree.

- Credit hours:
 - MFA degree (60 hours): minimum 58 hours of approved course work, plus 2 hours of final project report.
 - With an art history minor (69 hours): minimum 9 graduate hours of art history seminars in addition to above requirements.
- Time limitations: the degree must be completed within five years. After two years of residency there is no guarantee of financial assistance or studio privileges.
- Course requirements:
 - Core classes (8 hours): VASu 640 (2), art in theory (ArHC 500, 505, 510, or VASu 620) (6).
 - Studio emphasis (38 hours): VASu 619R (28); 694R (10).
 - Art history (6 hours including 3 hours of contemporary art).

Electives (6 hours).

Final project (2 hours).

- Evaluations: an annual full faculty review is required upon completion of candidate's second semester. After a successful faculty review, student is required to enroll (with their advisor) in one hour of VASu 694R every semester until completion of final project report is accomplished.
- Oral defense and examination of final project: the candidate must engage his or her committee for the oral defense after installation of the final project and completion of the final project report. Defense must be scheduled at least two weeks prior.
- Final project: to be produced and exhibited in the format of a solo exhibition.
- Final project report: candidates will submit a written final project report.

FINANCIAL ASSISTANCE

Financial assistance is available through tuition scholarships, supplemental awards, and teaching assistantships.

RESOURCES AND OPPORTUNITIES

Museum of Art. BYU's Museum of Art is a wonderful environment for the presentation and research of art and the various disciplines related to its analysis, theory, history, display, and reception. Whether it is an individual work, a collection, or an entire exhibition, students are encouraged to look, reflect, analyze, challenge, and enjoy.

Faculty and students engage collaboratively with the museum in projects that yield exhibitions, texts, documentaries, and other forms of presentation. Major exhibitions from its own collection of over 15,000 works and from other important collections are brought to the museum to provoke inquiry and to contribute to the university's academic discourses. Lectures, conferences, performances, and other educational experiences occur regularly in the museum's varied and versatile spaces.

The Museum of Art is one of the most spectacular buildings on campus, and whether it is a rigorous academic exercise, a social encounter with art, or lunch at the cafe, all students and faculty are assured a great experience there.

Art Studio Space. Studio space is provided for graduate students in all emphasis areas.

Art Resource Center. The center is an important library resource for graduate study of content, methods of inquiry, and methodology in the visual arts disciplines intrinsic to current art education programs. A wide variety of books, journals, art reproductions, curricula, and other visual materials and aids are available.

Art History Slide Library. A major resource for graduate student research and teaching, the slide library houses a collection of 120,000 slide reproductions of paintings, sculptures, architectural structures, and various minor arts. Furthermore, a number of students work in the library on assistantships or internships. A computerized indexing system enables a student to seek and find materials under broad categories of iconographic content—for example, art work dealing with animals, death, or certain kinds of landscapes.

COURSE DESCRIPTIONS

Art History and Curatorial Studies

500. Art in Theory: Spectatorship. (3)

Prerequisite: graduate status.

Review and critique of major theoretical approaches in art history, emphasizing philosophical relationship between viewer and object.

505. Art in Theory: Language. (3)

Prerequisite: graduate status.

Review and critique of major theoretical approaches in art history, emphasizing recent interest in language and semiotics.

510. Art in Theory: Context. (3)

Prerequisite: graduate status.

Review and critique of major theoretical approaches in art history, emphasizing space of display, the museum, and the work's social reception.

512R. Studies in Islamic Art. (3)

Prerequisite: graduate status.

Selected topics in Islamic art.

514R. Studies in Chinese Art. (3)

Prerequisite: graduate status.

Selected topics in Chinese art.

516R. Studies in Japanese Art. (3)

Prerequisite: graduate status.

Selected topics in Japanese art.

520R. Studies in Ancient Art. (3)

Selected topics in Egyptian, Greek, and Roman art.

530R. Studies in Medieval Art. (3)

Selected topics in early Christian, Byzantine, Romanesque, and Gothic art.

540R. Studies in Renaissance Art. (3)

Selected topics in northern and southern Renaissance art.

550R. Studies in Baroque Art. (3)

Selected topics in northern and southern baroque art.

560R. Studies in Eighteenth- and Nineteenth-Century Art. (3)

Selected topics in eighteenth- and nineteenth-century art of Europe and America.

570R. Studies in Modern and Contemporary Art. (3)

Selected topics in modern and contemporary art of Europe and America.

580R. Studies in Architecture. (3)

Selected topics in architecture of Europe and America.

590R. Studies in Curatorship. (3)

Selected topics in curation and the museum.

595R. Foreign Language Readings for Art Historians. (3)

Prerequisite: graduate student status.

Special instruction in reading French or German scholarly texts.

599R. Academic Internship. (1–8)
Prerequisite: ArtHC graduate student status.

Professional museum experience with a curatorial mentor.

600R. Individual Study. (1–8)

In-depth study into any chosen art-historical era.

699R. Master's Thesis. (1–6)

Visual Arts Education

578R. Art Education Studio. (3)

Prerequisite: graduate student status.

MA courses in ceramics, drawing, figure drawing, oil painting, aqueous painting, printmaking, crafts, and sculpture, as well as digital art.

594R. Special Problems in Art Education. (1–3)

Topics dealing with current education issues.

678R. Art Education Seminar: Issues and Trends. (3)

Seminar topics emphasizing issues and trends in art education. Topics investigated, discussed, and evaluated, depending on student needs.

699R. Master's Thesis. (1–6)

Visual Arts Studio

619R. Studio Methodologies Seminar. (1–6)

Prerequisite: graduate status.

Individually meeting once a week with team of faculty advisors in TBA slot. Weekly seminar also required.

620. Readings. (3)

Graduate readings in the visual arts.

621R. Drawing Studio. (3)

Prerequisite: admission to graduate program.

622R. Figure-Drawing Studio. (3)

Prerequisite: VASu 621R.

627R. Painting Studio. (3)

640. Graduate Business Practices. (2)

Prerequisite: graduate status.

Business practices and theories associated with managing a career in art.

650R. Intaglio Studio. (3)

651R. Lithograph Studio. (3).

Refining technical skills, collaborative procedures, and conceptualization of image versus process in the art of lithography.

656R. Sculpture Studio. (3)

659R. Ceramics Studio. (3)

694R. Special Problems. (1–3)

Prerequisite: graduate status and instructor's and committee consent.

698R. Selected Project. (2)

Prerequisite: graduate status; successful completion of preliminary exhibit.

Written report that places final exhibition in a contextual setting and defines, defends, and justifies its existence. Report clarifying how exhibit verifies original proposal.

FACULTY

ADAMS, PAUL, *Assistant Professor.*
MFA, Utah State University, 1996.
Photography.

ALLEN, VON D., *Associate Professor.*
MFA, Syracuse University, 1983.
Ceramics.

ANDERSEN, BETHANNE, *Associate Professor.* MFA, Brigham Young University, 1979. Illustration.

BARRETT, ROBERT, *Professor.* MFA, University of Iowa, 1976.
Illustration.

BARSCH, WULF E., *Professor.* MFA, Brigham Young University, 1972.
Painting.

BARTON, GAROLD C., *Associate Professor.* MFA, Ohio State University, 1994. Printmaking.

BEATTIE, DONNA KAY, *Professor.* PhD, University of Kansas, 1990. Art Education.

BRINKERHOFF, VAL, *Associate Professor.*
MFA, Utah State University, 1987.
Photography.

CHRISTENSEN, BRIAN D., *Associate Professor.* MFA, Washington University, St. Louis, 1992.
Ceramics.

DAY, MICHAEL D., *Professor.* EdD, Stanford University, 1973. Art Education.

DRAPER, BRYON, *Assistant Professor.*
MFA, Brigham Young University, 1995. Sculpture.

EVERETT, PETER, *Assistant Professor.*
MFA, Pratt Institute, 2000.
Painting.

FINLAYSON, CYNTHIA, *Assistant Professor.* PhD, University of Iowa, 1998. Classical and Ancient Near Eastern Art History.

FULLMER, HOWARD, *Assistant Professor.* MFA, Vermont College, 2003. Painting.

GILLETT, ERIC, *Assistant Professor.*
MFA, University of Utah, 2003.
Graphic Design.

GRAY, CAMPBELL B., *Adjunct Professor.*
PhD, University of Sussex, England, 1995. Director, Museum of Art. Curatorial Studies; Art History Theory.

HALTERN, HAGEN G., *Associate Professor.* MFA, Kunstakademie, Dusseldorf, Germany, 1976.
Painting.

HAMILTON, CHARLES M., *Professor.*
PhD, Ohio State University, 1978.
Architectural History; Medieval Art and Architecture.

HILL, SHERRON D., *Associate Professor.*
PhD, University of Iowa, 1973.
Art Education.

JOHNSON, MARK J., *Professor.* PhD, Princeton University, 1986.
History of Roman, Early Christian and Byzantine, and Medieval Art and Architecture.

KIMBALL, W. WAYNE, JR., *Professor.*
MFA, University of Arizona, 1970.
Printmaking.

MARSHALL, ROBERT L., *Professor.* MA, Brigham Young University, 1968.
Painting.

OSTRAFF, JOSEPH E., *Associate Professor.* MFA, University of Washington, 1982. Painting.

PEACOCK, MARTHA, *Professor.* PhD, Ohio State University, 1989.
History of Netherlandish Art.

SMITH, BRUCE H., *Professor.* MFA, University of Utah, 1968.
Painting.

SULLIVAN, LINDA, *Associate Professor.*
MFA, University of Utah, 1993.
Graphic Design.

TELFORD, JOHN, *Professor.* MFA, University of Utah, 1988.
Photography.

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BRIGHAM YOUNG UNIVERSITY

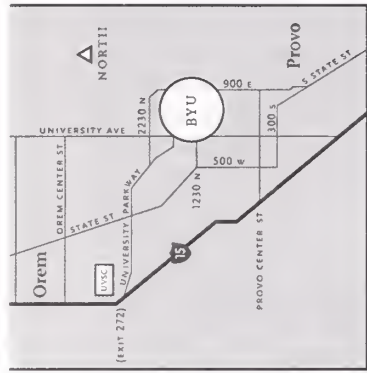
CAMPUS MAP

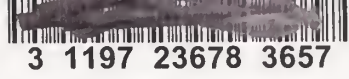


CAMPUS FACILITIES

1	ALLN	Allen Hall (Museum of Peoples and Cultures)	C/14	E/9	
2	ALUM	Alumni House			
3	FARM	Animal Science Farm	C/1,2		
4	AXMB	Auxiliary Maintenance Building	I/5,6		
5	B-21 to B-32	(Service Buildings)	G/12		
6	B-34, B-38, B-41, B-51	(Misc. Temporary Buildings)	G/12		
7	B66	B-66 Classroom/Lab Building	I/12		
8	B67	B-67 Service Building	C/2		
9	B72	B-72 Building (LDS Foundation)	C/8		
10	B77	B-77 Service Building (Former UVSC Building)	C/8,9		
11	MLBM	Bean Life Science Museum, Monte L.	G/8		
12	B-49	Benson Agriculture and Food Institute, Ezra Taft	F/14		
13	BNSN	Benson Building, Ezra Taft	F/12,13		
14	WSC	Bookstore, BYU	G/11		
15	BRWB	Brewster Building, Sam F.	H/1/12		
16	BRMB	Brimhall Building, George H.	E/12,13		
17	BELL	Centennial Carillon Tower	G/8		
18	PPCH	Central Heating and Cooling Plants	H/12		
19	CMB	Chemicals Management Building	I/12		
20	HRCB	Clark Building, Herald R.	F/G/12		
21	JRCB	Clark Building, J. Reuben (Law School)	H/10,11		
22	CLFB	Cluff Building, Benjamin (Plant Science Lab)	F/G/13,14		
23	CB	Clyde Engineering Building, W. W.	G/12		
24	CONF	Conference Center, BYU	H/7		
25		Cougat Room, LaVell Edwards Stadium	D/6		
26		Cougat Room, Marriott Center	F/7		
27	CTB	Cabrera Technology Building, Roland A.	H/12		
28	DPL	Creamery (Dairy Products Laboratory)	H/7		
29	CONE	Creamery on Ninth East	I/10		
30	DT	Deseret Towers and Morris Center (MORC)	H/1/8		
31	DTRA	Deseret Towers Recreation Area	I/6,7		
32	ESM	Earth Science Museum	C/6		
33	LIVES	Edwards Stadium, LaVell	D/E/5,6		
34	EMLC	Ellsworth Meat and Livestock Center, Leo B.	B/1		
35	ESC	Eyring Science Center, Carl F.	F/12		
36	FOB	Faculty Office Building	E/11		
37	FB	Fletcher Building, Harvey L.	G/12		
38	FLSR	Foreign Language Student Residence	I/4		
39	HCB	Grant Building, Heber J.	E/13		
40	HCEB	Harman Bldg., Caroline Hemenway (Cont. Ed.)	H/6		
41	HFAC	Harris Fine Arts Center, Franklin S.	G/10		
42		Harrison Arboretum and Botany Pond, Bertrand F.	F/13,14		
43	HAWF	Haws Field	B/C/12		
44	HL	Helaman Halls and Cannon Center (CANC)	D,E/F/8,9		
45	HLRA	Helaman Recreation Area	D/7		
46	HR	Heritage Halls and Central Building (HRCN)			
47	IPF	Indoor Practice Facility	H/1/9,10		
48	IWRA	Intramural Recreation Area (West Stadium)			
49	SWKT	Kimball Tower, Spencer W.	F/12		
50	AKH	Knight Hall, Amanda	B/C/14		
51	JKHB	Knight Humanities Building, Jesse	F/10		
52	KMB	Knight Mangum Building	G,H/12,13		
53	AXLB	Laundry Building, Auxiliary Services	I/6		
54	HBL	Lee Library, Harold B.	F/G/10,11		
55	MSRB	Maeser Building, Karl G.	E/13		
56	MC	Marriott Center, J. Willard	F/G/7,8		
57	MARB	Martin Building, Thomas L.	F/G/12		
58	MB	McDonald Building, Howard S.	G/13		
59	MCRB	McKay Building, David O.	E/12		
60	MLRP	Miller Park (Baseball/Softball Complex)	E,F/7		
61	MTC	Missionary Training Center	H/8		
62	PPMV	Motor Pool Vehicle Shelter	H/1/4,5		
63	MOA	Museum of Art	I/12,13		
64	NICB	Nichols Building, Joseph K.	G/10		
65	OLVH	Oliver House (Performing Arts Management)	F/12		
66	PTSB	Parking and Traffic Services Building	I/11		
67	RB	Richards Building, Stephen L.	D/E/10,11		
68	BBF	Richards Building Fields	D/10,11		
69	MTCB	Senior Missionary Training Center	C/9,10		
70	JSB	Smith Building, Joseph	E/F/13		
71	SB	Smith Building, Joseph F.	E/F/11		
72	SFH	Smith Fieldhouse, George Albert	D/E/12		
73	SFLD	Smith Fieldhouse South Field (Varsity Soccer)	D/12		
74	ASB	Smoot Administration Building, Abraham O.	F/G/10		
75	SNLB	Snell Building, William H.	H/12		
76	STEH	Stadium East and West (STWH) Houses	D/5		
77	SAB	Student Athlete Building	D/11		
78	SASB	Student Auxiliary Services Building	H/5,6		
79	SHC	Student Health Center	I/15		
80	TMCB	Talmage Math Sciences/Computer Building	F/10,11		
81	TNBB	Tanner Building, N. Eldon	E/10		
82	TLRB	Taylor Building, John (Comprehensive Clinic)	I/11		
83	TCB	Tennis Courts Building	D/12		
84	TCF	Tennis Courts, Outdoor	C/D/13		
85	TOMH	Thomas House (Risk Management and Safety)	F/8		
86	TRAK	Track and Field Complex	D/7,8		
87	UPC	University Parkway Center	B/C/6		
88	UPB	University Press Building	H/5,6		
89	VCTR	Visitors Center	E/12		
90	WAIH	Waite House (ISPART)	G/13		
91	ROTC	Wells Building, Daniel H. (Air Force/Army Reserve)	I/11		
92	WIDB	Wildeston Building, John A.	F/G/12		
93	WSC	Wilkinson Student Center, Ernest L.	G/H/11		
94	WT	Wymount Terrace and	I,K,L/1,3,4,5,6,7		

NOTE: A large colored version of this map is available at the BYU Bookstore or can be seen at <http://map.byu.edu>.





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